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Signify North America Corporation and
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**UNITED STATES DISTRICT COURT
DISTRICT OF NEVADA**

SIGNIFY NORTH AMERICA
CORPORATION and
SIGNIFY HOLDING B.V.,

Plaintiffs,

vs.

LEPRO INNOVATION INC,
LE INNOVATION INC,
INNOVATION RULES INC.,
HOME EVER INC., and
LETIANLIGHTING, INC.,

Defendants.

Civil No. 2:22-cv-02095-JAD-DJA

**PLAINTIFFS' OPENING CLAIM
CONSTRUCTION BRIEF**

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<u>Exhibit No.</u>	<u>Description</u>
Exhibit 23	<i>Milos Misha Subotincic v. 1274274 Ont.</i> , No. 10-cv-01946-AG-PJW (C.D. Cal. June 14, 2012)
Exhibit 24	Excerpt from Fiber Optics Standard Dictionary (2nd ed. 1989)

1 **I. INTRODUCTION**

2 Plaintiffs Signify North America Corporation and Signify Holding B.V. (collectively,
3 “Signify”) filed this action to stop willful patent infringement by five related co-defendants, LEPRO
4 Innovation Inc., LE Innovation Inc., Innovation Rules Inc., Home Ever Inc., and Letianlighting, Inc.
5 (collectively, “Defendants”). Signify accuses Defendants of infringing U.S. Patent Nos. 7,014,336,
6 7,038,399, 7,348,604, 7,352,138, 8,063,577, 9,709,253, and RE 49,320 (collectively, the “Patents-
7 in-Suit”).

8 Signify, formerly Philips Lighting, is the global market leader for lighting products with
9 recognized expertise in the development, manufacturing, and application of innovative LED lighting
10 solutions. Signify’s LED lighting products have been installed and utilized throughout the world,
11 including in Nevada on the T-Mobile Arena and The Forum Shops at Caesar’s Palace. To protect its
12 intellectual property resulting from its significant investments, Signify has obtained numerous
13 patents directed to various LED lighting devices and techniques.

14 Defendants have been aware of Signify’s patented technologies since at least November
15 2018. Despite that knowledge, Defendants continue to incorporate Signify’s patent technologies into
16 their products without permission.

17 Defendants proposed claim constructions rewrite the patent claims. Yet claim construction
18 “is simply a way of elaborating the normally terse claim language in order to understand and explain,
19 but not to change, the scope of the claims.” *Gart v. Logitech*, 254 F.3d 1334, 1339 (Fed. Cir. 2001)
20 (citation omitted). Because Defendants’ products literally infringe the plain language of the asserted
21 patent claims, Defendants hope to avoid liability through distorted constructions that support their
22 non-infringement positions and ignore the plain and ordinary language of the claims.

23 Signify’s claim constructions, on the other hand, rely primarily on the plain and ordinary
24 meaning of the patent terms. As held by the Federal Circuit, a construction should “depart from the
25 plain and ordinary meaning of claim terms based on the specification in only two instances:
26 lexicography and disavowal.” *Hill-Rom Servs. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir.
27 2014). This is especially true given that “the standards for finding lexicography and disavowal are
28 exacting.” *Id.* As opposed to Defendants’ tortured constructions, Signify’s constructions primarily

1 rely on the plain and ordinary meaning and serve to give the patent claims their full and intended
2 meanings under controlling Federal Circuit law as set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303
3 (Fed. Cir. 2005). Signify respectfully requests that the Court adopt its constructions of the disputed
4 claim terms and phrases for all asserted claims.

5 **II. LEGAL PRINCIPLES**

6 **A. Claim Construction**

7 The first step in an infringement action is for the Court to interpret the claims to determine
8 their scope and meaning, as a matter of law. *See Markman v. Westview Instruments, Inc.*, 517 U.S.
9 370, 372 (1996). “The construction that stays true to the claim language and most naturally aligns
10 with the patent’s description of the invention will be, in the end, the correct construction.” *Renishaw*
11 *PLC v. Marposs Societa’ Per Azioni*, 158 F.3d 1243, 1250 (Fed. Cir. 1998).

12 In construing a claim, the Court must examine the intrinsic evidence of record—namely, the
13 language of the claim, the specification, and the prosecution file history. *See Phillips*, 415 F.3d at
14 1313-14. The Court may also consider extrinsic evidence to understand matters such as the
15 technology at issue. *Id.* at 1317.

16 The Federal Circuit Court of Appeals has “frequently stated that the words of a claim are
17 generally given their ordinary and customary meaning,” which is the “meaning that the term would
18 have to a person of ordinary skill in the art in question at the time of the invention, *i.e.*, as of the
19 effective filing date of the patent application.” *Phillips*, 415 F.3d at 1312-13; *see also Altiris, Inc.*,
20 *v. Symantec Corp.*, 318 F.3d 1363, 1369 (Fed. Cir. 2003) (there is a “heavy presumption” that claim
21 terms carry their ordinary and customary meaning).

22 “In some cases, the ordinary meaning of claim language as understood by a person of skill
23 in the art may be readily apparent even to lay judges, and claim construction in such cases involves
24 little more than the application of the widely accepted meaning of commonly understood words.”
25 *Phillips*, 415 F.3d at 1314. “In such circumstances, general purpose dictionaries may be helpful.”
26 *Id.* However, “because the meaning of a claim term as understood by persons of skill in the art is
27 often not immediately apparent, and because patentees frequently use terms idiosyncratically, the
28 court looks to ... the words of the claims themselves, the remainder of the specification, the

prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” *Id.* (citation omitted).

To begin, “the claims themselves provide substantial guidance as to the meaning of particular claim terms.” *Phillips*, 415 F.3d at 1314. Indeed, “the context in which a term is used in the asserted claim can be highly instructive.” *Id.* In addition, “other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term.” *Id.* “Because claim terms are normally used consistently throughout the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims.” *Id.* “Differences among claims can also be a useful guide in understanding the meaning of particular claim terms.” *Id.* For example, “the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.” *Id.* at 1315.

Next, the claims “must be read in view of the specification, of which they are a part.” *Phillips*, 415 F.3d at 1315 (citation omitted). The specification “is always highly relevant to the claim construction analysis.” *Id.* In cases where the meaning of a disputed claim term in the context of the patent’s claims remains uncertain, the specification is the “single best guide to the meaning of a disputed term.” *Id.* As a general rule, however, the particular examples discussed in the specification are not to be read into the claims as limitations. *Id.* at 1323; *see also Laitram Corp. v. Cambridge Wire Cloth Co.*, 863 F.2d 855, 865 (Fed. Cir. 1988) (“References to a preferred embodiment, such as those often present in a specification, are not claim limitations.”).

The Court should also consider the prosecution history. *Phillips*, 415 F.3d at 1317. “Yet because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Id.*

Finally, if the intrinsic evidence is insufficient to establish the clear meaning of a claim, the Court may consider extrinsic evidence, but it is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Phillips*, 415 F.3d at 1317 (citation omitted). Extrinsic evidence “consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Id.* However, it is

1 inherently “less reliable” and “is unlikely to result in a reliable interpretation of patent claim scope
2 unless considered in the context of the intrinsic evidence.” *Id.* at 1318-19.

3 **B. Indefiniteness**

4 Indefiniteness is a question of law, subject to a determination of underlying facts. *Akzo Nobel*
5 *Coatings, Inc. v. Dow Chem. Co.*, 811 F.3d 1334, 1343 (Fed. Cir. 2016). Patents are presumed to be
6 valid, and the challenger bears the burden of establishing invalidity by “clear and convincing
7 evidence.” 35 U.S.C. § 282; *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 912 n.10 (2014)
8 (quoting *Microsoft Corp. v. i4i Ltd.. Partnership*, 564 U.S. 91, 95 (2011)).

9 A patent’s claims are definite if their language, “viewed in light of the specification and
10 prosecution history, inform those skilled in the art about the scope of the invention with reasonable
11 certainty.” *Nautilus*, 572 U.S. at 910. “The definiteness requirement, so understood, mandates
12 clarity, while recognizing that absolute precision is unattainable.” *Id.* “[T]he certainty which the law
13 requires in patents is not greater than is reasonable, having regard to their subject-matter.” *Id.*

14 A court’s inquiry “must take into account the inherent limitations of language” because
15 “[s]ome modicum of uncertainty . . . is the ‘price of ensuring the appropriate incentives for
16 innovation.” *Id.* at 2128 (quoting *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S.
17 722, 732 (2002)). While patent claims must be sufficiently detailed to satisfy 35 U.S.C. § 112, “an
18 inventor need not explain every detail because a patent is read by those of skill in the art.” *Wellman,*
19 *Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1367 (Fed. Cir. 2011); *see also Nautilus*, 572 U.S. at
20 909 (“One must bear in mind . . . that patents are ‘not addressed to lawyers, or even to the public
21 generally,’ but rather to those skilled in the relevant art.” (quoting *Carnegie Steel Co. v. Cambria*
22 *Iron Co.*, 185 U.S. 403, 437 (1902))).

23 **C. Means-Plus-Function**

24 Section 112, ¶ 6 provides that “[a]n element in a claim for a combination may be expressed
25 as a means or step for performing a specified function without the recital of structure, material, or
26 acts in support thereof.” 35 U.S.C. § 112, ¶ 6 (pre-AIA). Where an element of a claim is expressed
27 in this manner, it is described as a “means-plus-function” term or “step-plus-function” term.
28

1 Section 112, ¶ 6 further provides that, when such a term is present in the claim, the “claim
2 shall be construed to cover the corresponding structure, material, or acts described in the
3 specification and equivalents thereof.” *Id.*

4 To determine whether § 112, ¶ 6 applies to a particular term, Federal Circuit precedent “has
5 long recognized the importance of the presence or absence of the word ‘means.’” *Zeroclick, LLC v.*
6 *Apple Inc.*, 891 F.3d 1003, 1007 (Fed. Cir. 2018). When a claim term does not recite the word
7 “means,” it triggers a presumption that the claim term does not invoke the means-plus-function
8 provision. *Id.* This presumption is rebuttable only if “the challenger demonstrates that the claim term
9 fails to recite sufficiently definite structure or else recites function without reciting sufficient
10 structure for performing that function.” *Id.*

11 If the Court determines that § 112, ¶ 6 applies such that the term is a means-plus-function
12 term, the Court construes the term under a two-part framework: First, the court must determine the
13 particular function of the claim limitation, and second, the court must identify the corresponding
14 structure in the written description that performs that function. *Chi. Bd. Options Exchange, Inc. v.*
15 *Int’l Sec. Exch., LLC*, 677 F.3d 1361, 1367 (Fed. Cir. 2012). A party alleging that the specification
16 fails to disclose sufficient structure such that the claim is indefinite must prove such failure by clear
17 and convincing evidence. *TecSec, Inc. v. IBM.*, 731 F.3d 1336, 1349 (Fed. Cir. 2013).

18 **III. PROPER CONSTRUCTION OF THE DISPUTED CLAIM LANGUAGE**

19 In accordance with Local Patent Rule 1-15 and the Court’s Scheduling Order (ECF No. 37),
20 the parties filed a Joint Claim Construction and Prehearing Statement (ECF No. 48) on July 17, 2023
21 setting forth 1) that there are no claim terms on which the parties agree on a construction and 2)
22 proposed constructions for claim terms on which the parties have a dispute.

23 **A. U.S. Patent 7,014, 336 (the “’336 Patent”)**

24 **1. Technical Overview**

25 The ’336 Patent is directed to an LED light fixture for generating high quality white light.
26 Ex. 1, ’336 Patent, 21:64-67. The ’336 Patent recognizes that not all sources of white light are high
27 quality. *Id.* at 24:64-67; *see also, id.* at 19:16-18. Low quality white light sources appear “extremely
28 artificial” to a user because such sources do not provide a “complete spectrum” of wavelengths of

light. *See id.* at 19:47-55. For comparison, natural white light (*i.e.*, sunlight), as widely understood, is a “mixture of different wavelengths of light” that includes “a virtually continuous spectrum of wavelengths across the human visible band (and beyond).” *Id.* at 19:22-29.

An example of a low-quality white light source is shown in Figure 27, which depicts a spectrum of a compact fluorescent lamp:

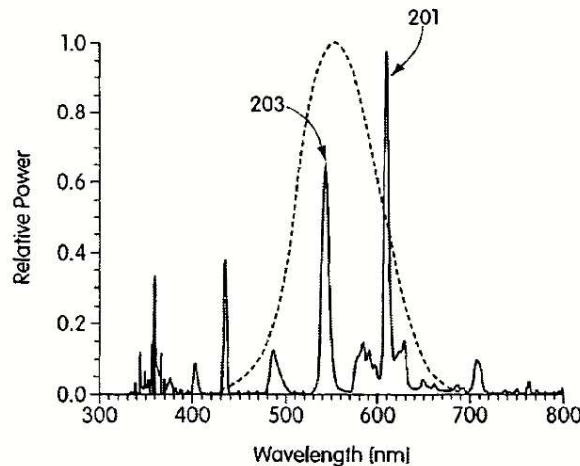


Fig. 27
(Prior Art)

The spectrum of the fluorescent lamp is not substantially continuous and instead is “comprised of many spikes,” the result of which is “usable but not optimal (*i.e.*, *it appears artificial*).” *Id.* at 21:51-59 (emphasis added); *see also, id.* at 19:30-34.

The artificial appearance is due to the way the light is reflected off surfaces. *See id.* at 19:47-55. A colored surface illuminated by the light absorbs and reflects different wavelengths of light. *Id.* If white light comprises “a full spectrum” the surface will “absorb and reflect perfectly,” resulting in a natural appearance of the surface. *Id.* at 19:51-54. However, “if there is not a wavelength of light present in the generation of white light, it is impossible for an object of a color to reflect/absorb that wavelength,” leading to an abnormal appearance. *Id.* at 21:38-41.

High quality white light, therefore, is light that “provides low distortion to colored objects when they are viewed under it” and does “not have significant peaks and valleys within the area of the human eye’s photopic response.” *Id.* at 20:24-26, 22:16-19. “Most artificial light[] does however have some peaks and valleys in this region such [as] shown in Figure 27 [reproduced above], however the less difference between the points the better.” *Id.* at 22:20-22.

The '336 Patent thus discloses a LED light fixture for generating high-quality white light taking into account the relationship between the peaks and valleys of the spectrum. *Id.* at 22:28-29. Specifically, the '336 Patent discloses that, with respect to the spectrum of light produced by such a light fixture, “[t]he lowest valley in the visible range should have a greater intensity than the intensity attributable to background noise as would be understood by one of skill in the art.” *Id.* at 22:31-34. The patent further discloses that “high-quality artificial white light should therefore have a spectrum that is substantially continuous between the 400 nm and 700 nm [wavelength range] without dramatic spikes.” *Id.* at 22:50-53.

2. Terms for Construction

a. “background noise”

Signify’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning; however, to the extent that the Court deems a construction is required: “electromagnetic radiation produced independent of the lighting fixture”	Indefinite

The term “background noise” is a common term that would have been readily understood by a person of ordinary skill in the art at the time of invention. There is no indication that the patentee played lexicographer and gave the term “background noise” a special meaning. Accordingly, the term should be afforded its plain and ordinary meaning. *See Phillips*, 415 F.3d at 1312-13.

To the extent that a construction is necessary, the plain and ordinary meaning of the term “background noise” can be seen in dictionary definitions. As explained by the Federal Circuit, “[i]n some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” *Phillips*, 415 F.3d at 1314. “In such circumstances, general purpose dictionaries may be helpful.” *Id.* Specifically, “background noise” can be defined as:

the noise that typically affects a system but is produced independent of the system. The noise is typically due to thermal effects in

materials, interpreted as the random motion of electrons, and the intensity depends on the temperature of the material. In radio channels, background noise is typically due to radiation that is inherent to the universe and due mainly to radiation from astronomical bodies. There is a fundamental lower bound on the intensity of such noise which is solely dependent on the universe and independent of antenna and receiver design.

Ex. 8, COMPREHENSIVE DICTIONARY OF ELECTRICAL ENGINEERING, *background noise* (2nd ed. 2005). If the Court determines that a construction is required, the term should be construed to mean “electromagnetic radiation produced independent of the lighting fixture,” which is consistent with the dictionary definition. Here, the noise is specifically electromagnetic radiation (*i.e.*, light) since the background noise is compared to the spectrum resulting from two white LEDs, each generating electromagnetic radiation (*i.e.* white light). *See* Ex. 1, ’336 Patent, claims 132 and 186. And the system—the broader context of the claim—is the lighting fixture including the two white LEDs. *Id.*

Despite the clear meaning of the term “background noise,” Defendants argue that the term is indefinite. In Defendants’ invalidity contentions, Defendants argue that “[c]laims 132 and claims 186 of the ’336 Patent are indefinite because [1] the claim term ‘background noise’ lacks antecedent basis and [2] because the scope of the claim pursuant to the claim limitation reciting ‘the visible portion of said resulting spectrum has intensity greater than background noise at its lowest spectral valley’ cannot be reasonably ascertained by those skilled in the art.” Defendants’ Invalidity Contentions. Both of Defendants’ arguments should be rejected.

First, there is no lack of antecedent basis of “background noise.” This the first and only time in claims 132 and 186 that the term is used, and it does not purport to reference any earlier usage of the term. There is simply no antecedent basis issue.¹

¹ Even if there was a lack of antecedent basis, “[t]he lack of antecedent basis does not render a claim indefinite as long as the claim ‘apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by [§ 112 ¶ 2].’” *In re Downing*, 754 F. App’x 988, 996 (Fed. Cir. 2018) (square brackets in original) (holding that the term “the end user” introduced without antecedent basis was not indefinite, as it could only refer to the end user using the product).

Second, Defendants proposed the claim term “background noise” for construction, not the longer “the visible portion of said resulting spectrum has intensity greater than background noise at its lowest spectral valley” phrase alleged to be indefinite in Defendants’ invalidity contentions. As discussed above, “background noise” is understood by a person of ordinary skill in the art, as evidenced by the existence of dictionary definitions of the term. The specification itself underscores that “background noise” would be readily understood by a person of ordinary skill in the art, stating: “the lowest valley in the visible range should have a greater intensity than the intensity attributable to *background noise as would be understood by one of skill in the art.*” Ex. 1, ’336 Patent, 22:31-34 (emphasis added). The five inventors of the ’336 Patent were employees of Color Kinetics, a predecessor of Signify, a company at the forefront of LED technology. These inventors specifically stated in their patent that “background noise” was a term of art that they understood and would be understood by a person of ordinary skill. As though this were not enough, the specification goes on to provide multiple examples of spectrums of high-quality white light, thus providing examples of spectral valleys that exceed the background noise, and further demonstrating that this term would be readily understood by a person of ordinary skill in the art. *See, e.g.*, Ex. 1, ’336 Patent, FIGs. 14, 15a-b, 16, 17a-b, 21a-b and 26a-b and accompanying description at 22:60-26:11 and 26:52-27:7.

Accordingly, Defendants’ indefiniteness argument should be rejected and the term “background noise” should be afforded its plain and ordinary meaning. To the extent a construction is necessary, Signify’s proposed construction—which aligns with the plain and ordinary meaning of the term—should be adopted.

B. U.S. Patents 7,038,399 (the “’399 Patent”) and 7,352,138 (the “’138 Patent”)

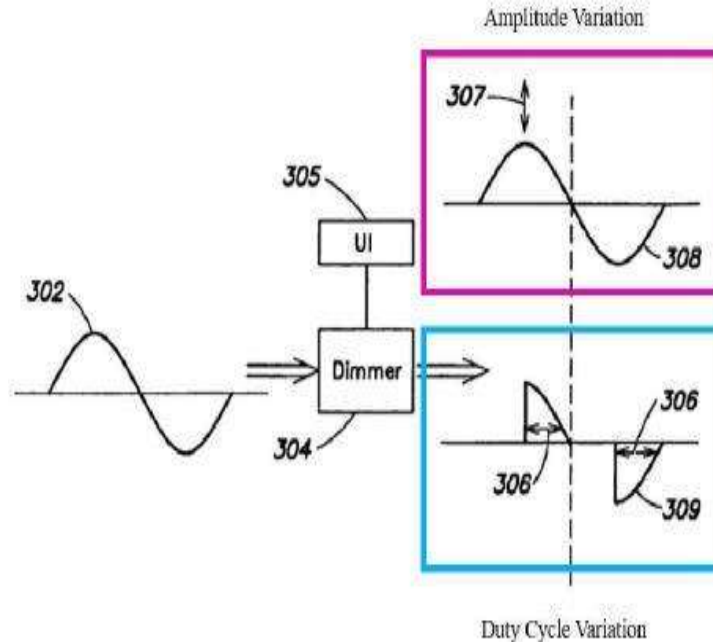
The ’138 Patent is a continuation of the ’399 Patent and includes the same specification. Because the parties propose the same constructions for the terms in the ’138 Patent and the ’399 Patent, the terms of both patents are addressed together below in the context of the ’399 Patent.

1 1. Technical Overview

2 The '399 and '138 Patents are directed to LED-based illumination devices that are compatible
 3 with existing alternating current ("A.C.") dimming circuits. Ex. 2, '399 Patent,² 2:50-60. Lighting
 4 systems are generally powered by an A.C. power source, such as the standardized electricity found in
 5 most homes, commonly referred to as a "line voltage." *Id.* at 1:50-53. Lighting dimmers receive this
 6 A.C. line voltage from the electrical grid and can vary the characteristics of the output A.C. signal in
 7 response to use of a dimmer switch. *Id.* at 1:53-59. This allows the user to increase or decrease a
 8 light's brightness. Incandescent lights, which provide light when current flows through a filament, are
 9 inherently compatible with the varying A.C. signals output by dimmer switches. The change in
 10 average voltage directly adjusts the amount of current flowing through the filament and the intensity
 11 of the light output from the filament. *Id.* at 2:30-46. In contrast to incandescent lights, LED lights
 12 emit light by electroluminescence—a fundamentally different physical phenomenon based on a
 13 flow of *direct* current (D.C.) through a semiconductor such as a diode. *Id.* at 4:11-18, 9:4-16.

14 Conventional A.C. dimming devices are generally not acceptable for use in dimming the light
 15 output from LEDs. *Id.* Traditional A.C. dimming circuits provide varying A.C. signals in one of a few
 16 ways. *Id.* at 1:64-2:16. In one approach, the adjustment of the dimmer switch causes the A.C. dimming
 17 circuit to increase or decrease the voltage amplitude of the A.C. signal output (an example of which is
 18 shown in the purple box of annotated FIG. 1 of the '399 Patent, provided below). As the amplitude
 19 increases, the average voltage of the A.C. signal increases, making the light brighter. *Id.* at 1:66-2:2. In
 20 another more common approach, adjustment of the dimmer switch causes the A.C. dimming circuit to
 21 vary the "duty cycle" of the output A.C. signal (an example of which is shown in the blue box of
 22 annotated FIG. 1 of the '399 Patent, provided below). *Id.* at 2:3-8. The "duty cycle" refers to the relative
 23 time for which a voltage is active in a period of the signal. By altering the duty cycle, the resulting
 24 A.C. signal is "chopped" such that a voltage is present only a portion of the time, thus again allowing
 25 variation of the average voltage of the signal over time. *Id.* at 2:2-6.

26
 27
 28 ² Because the '399 and '138 Patents share a common specification, citations will be made only to the '399 specification.



Id. at FIG. 1 (annotated). Each approach—adjusting the amplitude or the duty cycle—results in a signal other than a standard signal A.C. line voltage.

The '399 Patent discloses illumination devices and methods that make LED lights compatible with these non-standard, varying A.C. signals from A.C. dimmer circuits. *Id.* at 2:50-60. Figure 3 of the '399 Patent, shown below, illustrates an exemplary lighting unit that is compatible with an A.C. dimmer circuit that provides A.C. signals having a variable duty cycle.

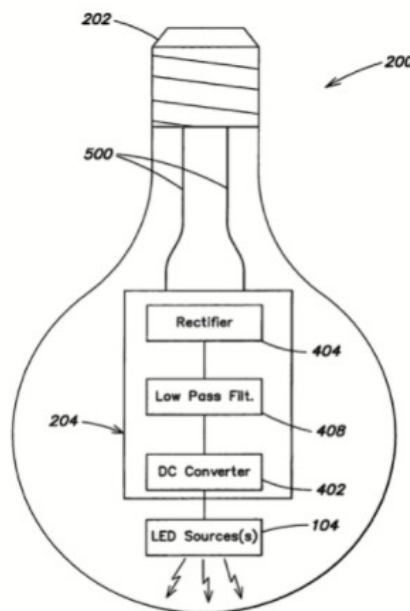


FIG. 3

Id. at FIG. 3. The '399 Patent discloses use of a controller to convert an A.C. signal with variable duty cycle into a D.C. signal suitable to drive an LED light source. *Id.* at 10:43-47. The controller can also include power circuitry, including a combination of a rectifier, low-pass filter, and DC converter. *See id.* at 12:61-63, 14:6-14, 18:50-54. These components can together result in “an essentially stable DC voltage as a power supply for the LED-based light source 104.” *Id.* at 12:61-66. In other exemplary embodiments, like the embodiment of Figure 5, the light output from the LED is varied based on the varying output of the dimmer, using an adjustment circuit. *Id.* at 14:8-18. The adjustment circuit can provide a variable drive signal to the LED based on variation in the average voltage of the incoming A.C. signal in response to user operation of the dimmer. *Id.* at 14:14-18. The specification provides further details on exemplary circuit embodiments for each of these components. *See, e.g., id.* at FIGs. 4, 6.

2. Terms for Construction

a. “controller”

Signify’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning; however, to the extent that the Court deems a construction is required: “A circuit or component that controls”	Means plus function term

i. “controller” should be afforded its plain and ordinary meaning.

The term “controller” is a common term that would have been readily understood by a person of ordinary skill in the art at the time of the invention. As described in further detail below, the meaning of “controller” is readily ascertainable, as reflected in dictionary definitions. There is no indication that the patentee played lexicographer and gave the term “controller” a special meaning. Accordingly, the term should be afforded its plain and ordinary meaning. *See Phillips*, 415 F.3d at 1312-13. To the extent that a construction is necessary, Signify’s proposed construction of “a circuit or component that controls,” aligns with the plain and ordinary meaning of the term, should be adopted.

1 **ii. “controller” connotes structure and is not a means plus function term.**

2 The term “controller” refers to structure and should be given its plain and ordinary meaning
 3 in the art. *See e.g., Maxell Ltd. v. Huawei Device USA Inc.*, 297 F. Supp. 3d 668, 748 (E.D. Tex.
 4 2018). Specifically, to the extent that a construction is required, the term “controller” should be
 5 construed as “a circuit or component that controls.” *See e.g., Koninklijke Philips Electronics, NV, et*
 6 *al. v. Defibtech LLC, et al.*, No. C03-1322JLR, 2005 WL 3500783, at *6 (W.D. Wash, Dec. 21,
 7 2005); *see also Enova Tech. Corp. v. Initio Corp.*, No. 10-04-LPS, 2013 WL 611315, at *1 (D. Del.
 8 Feb. 19, 2013) (construing the term “main controller” as “one or more components adapted to
 9 receive input from and provide control signals to other components to coordinate their overall
 10 operation.”). “Controller” as used in the ’399 Patent and ’138 Patent claims is not a means-plus-
 11 function term. Persons of ordinary skill in the art would have understood the term “controller” to
 12 have a sufficiently definite meaning as a name for structure. In the context of the claims, the
 13 controller is a structure that receives a non-standard A.C. signal as an input and provides an output
 14 signal suitable for driving an LED light source.

15 To determine whether § 112, ¶ 6 applies, Federal Circuit precedent “has long recognized the
 16 importance of the presence or absence of the word ‘means.’” *Zeroclick* 891 F.3d at 1007. When a
 17 claim term does not recite the word “means,” it triggers a presumption that this provision is not
 18 invoked. *Id.* This presumption is rebuttable only if “the challenger demonstrates that the claim term
 19 fails to recite sufficiently definite structure or else recites function without reciting sufficient
 20 structure for performing that function.” *Id.*

21 Courts have consistently found that a “controller” is not a means-plus-function term. *See,*
 22 *e.g., Sound View Innovations, LLC v. Facebook, Inc.*, No. 16-cv-116(RGA), 2017 WL 2221177, at
 23 *5 (“‘Controller’ may be a class of structures, rather than one specific structure, and may be defined
 24 with functional terms, but that does not make it means-plus-function.”); *id.* (holding that “controller”
 25 is not a functional term and stating that “controller,” is not “anything that controls,” but, as used in
 26 the relevant patent, “refers to hardware controllers as well as firmware and software controllers or
 27 hybrid controllers”); *Dominion Res., Inc. v. Alstom Grid, Inc.*, No. 15-cv-00224-MAK, slip op. at
 28 *4 (E.D. Pa. Oct. 28, 2015) (stating, “[t]he term[] ‘controller’ . . . do[es] not have the same verbal

construct which could be tantamount to using the word ‘means’”) (Ex. 21); *Koninklijke Philips Electronics, NV*, 2005 WL at *6 (“[A controller is] a circuit or component that controls.”); *Milos Misha Subotincic v. 1274274 Ont.*, No. 10-cv-01946-AG-PJW, slip op. at *26 (C.D. Cal. June 14, 2012) (“[E]ven if the specification was completely silent as to the structure of the controller, the plain meaning of the term itself connotes sufficient structure to a person of ordinary skill in the art to avoid means plus function treatment.”) (Ex. 23). Additionally, the term “controller” is not a nonce word that operates as a substitute for “means.” *Maxell Ltd.*, 297 F. Supp. 3d at 748 (determining controller had plain and ordinary meaning where there was no evidence to support the term controller being a nonce word).

The term “controller” here merits no different treatment. The claims do not refer to any “means,” and thus, the presumption is that the term “controller” does not invoke § 112, ¶ 6. Defendants cannot rebut that presumption because the claimed “controller” is structural. *See Zeroclick*, 891 F.3d at 1007. The structural nature of “controller” is demonstrated by the ordinary use of the term and by the claims and the specifications of the ’399 and ’138 Patents.

First, dictionaries demonstrate that “controller” ordinarily denotes structure, defining it as, for example, “[a] device . . . used to adjust current or voltage” or “[a] circuit, mechanism, device, or system, which monitors one or more variables, and automatically makes the necessary adjustments in order to maintain operation within the specified parameters.” *See, e.g.*, Ex. 9, THE ILLUSTRATED DICTIONARY OF ELECTRONICS (8th ed. 2001); *see also* Ex. 10, WILEY ELECTRICAL AND ELECTRONICS ENGINEERING DICTIONARY (2004). Therefore, even without looking to the specifications of the ’399 and ’138 Patents, a skilled artisan would have understood “controller” to recite sufficiently definite structure. *Zeroclick*, 891 F.3d at 1007.

The claims of the ’399 and ’138 Patents provide further details and confirmation of the structure for the claimed “controller.” Claims 7, 17 and 18, for example, recite a controller “coupled to the at least one LED” that “receive[s] a power-related signal from an alternating current (A.C.) power source” as well as “provide[s] power to the at least one LED based on the power-related signal.” Ex. 2, ’399 Patent, claims 7, 17, 18. Claims 17 and 18, for example, further specify that the controller includes an “adjustment circuit” and “power circuitry,” the latter of which further includes

1 a “rectifier,” a “low pass filter,” and a “DC converter.” *Id.* at 26:38-67. Claim 48³ recites “a housing
2 . . . to enclose the at least one LED and the at least one controller.” *Id.* at 30:52-55. The claims thus
3 set forth specific structure for the controller.

4 The specification further confirms that “controller” is a structural term. For example, the
5 controller is “coupled to” at least one LED and configured to provide power to the LED. *Id.* at 3:4-
6 11, 3:17-22, 3:27-39, 12:50-67, 14:8-18, FIGs. 3-11. Further, the specification provides multiple
7 examples of circuits that serve as the controller. Figure 6, for example, is an exemplary circuit for
8 one embodiment of the controller components shown in Figure 5, including an exemplary structure
9 of controller 204A. *Id.* at 14:1-49, FIGs. 5, 6. In some embodiments, the controller may also include
10 a processor. *Id.* at 14:52-55, FIG. 7. Because these are structural terms that “describe how the
11 [controller] interacts with other components” in the claim in a way that “inform[s] the structural
12 character of the limitation-in-question” and “otherwise impart structure” to “controller,” the claim
13 language confirms that a skilled artisan would understand the claimed “controller” to recite a
14 sufficiently definite structure. *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1351 (Fed. Cir.
15 2015) (en banc); *see also Zeroclick*, 891 F.3d at 1007; *Maxell Ltd.*, 297 F. Supp. 3d at 748.

16 **iii. If “controller” is construed as means plus function, Signify’s proposed**
17 **structure should be adopted.**

18 If “controller” is governed by § 112, ¶ 6, which Signify disputes, the Court should adopt
19 Signify’s proposed structure as supported by the specification. If the Court determines that § 112, ¶
20 6 applies, the Court must first determine the particular function of the controller, and then identify
21 the corresponding structure(s) in the written description that performs that function. *Chi. Bd.*
22 *Options*, 677 F.3d at 1367. The parties agree on the recited functions with respect to claims 7, 8, 17,
23 58, 59, and 60 and only disagree on the proposed structures.

24 The parties also agree that structures corresponding to the controller can include the
25 components (i) rectifier 404, low-pass filter 408, DC converter 402 and adjustment circuit 208; (ii)
26 and controller 204B, for which exemplary embodiments are shown in Figures 6 and 8-11. The

27 ³ Although claim 48 is not asserted, it provides context to the structural nature of the recited
28 controller.

parties' dispute is whether these corresponding structures are further limited to only the specific exemplary circuit embodiments of those structures shown in Figure 6 and 8-11.

Signify's proposal properly recognizes that example corresponding structures are illustrated in Figures 5 and 7, and that Figures 6 and 8-11 provide example circuit embodiments for realizing those structures. Defendants, on the other hand, seek to ignore Figures 5 and 7 and the description in the specification and limit the scope of the disclosed structures to only the two specific embodiments shown in Figures 6 and 8.⁴ Defendants' proposal is wrong, and should be rejected. *See Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1276 (Fed. Cir. 2008) ("We normally do not interpret claim terms in a way that excludes embodiments disclosed in the specification.").

Figures 5 and 7 of the '399 Patent illustrate two examples of a "controller." In Figure 5, the structure corresponding to the controller can include rectifier 404, low-pass filter 408, DC converter 402 and adjustment circuit 208. In Figure 7, corresponding structure can include power circuitry 108, processor 102, drive circuitry 109, and memory 114. The structures corresponding to the controller are not, however, limited by the specific components that demonstrate the circuitry within the controller. Those components are simply one example that demonstrates a controller, which itself is already a structural element. The fact that the patent provides one exemplary circuit embodiment that uses certain components does not mean that other circuit components cannot be used to realize the disclosed structures. Indeed, rectifier 404, low-pass filter 408, and DC converter 402 are also components of the controller illustrated in Figure 3 (for a non-varying LED), but the circuit level example for these components (as shown in Figure 4) is different. Accordingly, the corresponding structures for the controller in the asserted claims are the components shown in Figures 5 and 7, which of course includes, but is not limited to, the specific circuit examples illustrated in Figures 6 and 8-11. In fact, while Defendants try to improperly exclude the structures in Figure 7, Defendants

⁴ Further, Defendants' proposal to limit the term to these two specific embodiments is at odds with their statement in support of their enablement argument in their invalidity contentions, where Defendants admit that the term "controller" "can be a processor or some other type of circuitry." Defendants' Invalidity Contentions ("The claims as drafted cover all implementations of using a controller to retrofit LED lights to work with an A.C. dimmer circuit power source. Such a controller can be a processor or some other type of circuitry."). Thus, Defendants, in their invalidity contentions recognized that the "controller" could cover a processor.

acknowledge that the processor 102 in Figure 7 is part of the applicable structure. Thus, Defendants' position is internally inconsistent and should be rejected.

Defendants' proposal also fails to include the descriptions of the controller from the specification that describe the corresponding structures, presumably because the specification makes clear that the corresponding structures are not limited to the circuit level examples in Figures 6 and 8. For example, the specification explains that it may be advantageous to place all or part of the filter components 408 ahead of the rectifier 404. Ex. 2, '399 Patent, 13:56-58. Similarly, the specification explains that "the circuit of FIG. 8 may be modified to include additional components similar to those shown in connection with the adjustment circuit 208 of FIG. 6 . . ." (*id.* at 19:5-12), which would require modification of the circuit-level implementation. The patent further explains that the circuit of Figure 8 could be modified to derive a control signal from other parts of the circuit, such as at an output of the rectifier or low pass filter. *Id.* at 19:13-16. These passages, among others, make clear that the structures that can correspond to the controller are not limited to the specific circuit implementations that Defendants propose and instead encompass all of the structures identified by Signify. *See Acromed Corp. v. Sofamor Danek Grp. Inc.*, 253 F.3d 1371, 1382-83 (Fed. Cir. 2001) ("This court will not limit a patent to its preferred embodiments in the face of evidence of broader coverage by the claims."); *see also Kinik Co. v. ITC.*, 362 F.3d 1359, 1364 (Fed. Cir. 2004).

Thus, if the court determines that the term "controller" is a means-plus-function term, Signify's proposed construction should be adopted because it properly identifies corresponding structures disclosed in the specification.

b. "adjustment circuit"

Signify's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning; however, to the extent that the Court deems a construction is required: "A circuit that adjusts"	Means plus function term.

i. The term “adjustment circuit” should be afforded its plain and ordinary meaning.

The term “adjustment circuit” is a common term that would be readily understood by a person of ordinary skill in the art at the time of the invention. As described in further detail below, the meaning of “adjustment circuit” is readily ascertainable, as reflected in dictionary definitions. There is no indication that the patentee played lexicographer and gave the term “adjustment circuit” a special meaning. Accordingly, the term should be afforded its plain and ordinary meaning. *See Phillips*, 415 F.3d at 1312-13. To the extent that a construction is necessary, Signify’s proposed construction of “a circuit that adjusts” aligns with the plain and ordinary meaning of the term and should be adopted.

ii. The term “adjustment circuit” connotes structure and is not a means plus function term.

The term “adjustment circuit” refers to structure and should be construed according to its plain and ordinary meaning in the art, *i.e.*, a circuit that adjusts. In the context of the claims, an “adjustment circuit” is a circuit that adjusts to control at least one parameter of light. The claims recite that the “adjustment circuit” is part of the “controller.”

As with “controller,” “adjustment circuit” is not governed by § 112, ¶ 6 because it does not use the term “means” and it is understood to have structure. At least one court has confirmed as much directly. *Graphics Props. Holdings. v. ASUS Comp. Int’l, Inc.*, No. 12-cv-210-LPS, slip op. at *40 (D. Del. Sept. 29, 2014) (construing “adjustment circuit” as “adjustable circuit that is operable to generate reference voltages”) (Ex. 22). Courts have generally interpreted the term “circuit” to connote structure. *See MIT & Elecs. For Imaging, Inc. v. Abacus Software*, 462 F.3d 1344, 1355 (Fed. Cir. 2006) (“[D]ictionary definitions establish that the term ‘circuitry,’ by itself, connotes structure.”). This is particularly true when the patent recites the performed function. *See Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1320–21 (Fed. Cir. 2004) (holding that the term circuit is not a means-plus-function limitation when the patent provides “a recitation of the respective circuit’s operation in sufficient detail to suggest structure to persons of ordinary skill in

the art”); *Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 711 F.3d 1348, 1364–65 (Fed. Cir. 2013) (holding that “soft start circuit” was not means-plus function).

The term “adjustment circuit” finds ample support and structure in both the claims and the specification of the ’399 Patent. Claim 19, for example, recites that the adjustment circuit “is coupled to the DC converter and is configured to variably control the at least one LED based on the filtered rectified power-related signal,” connoting the structure of the adjustment circuit. Ex. 2, ’399 Patent, 26:38-67. Claim 20 explains specifically that the adjustment circuit “includes at least one processor configured to monitor at least one of the power-related signal, the rectified power-related signal, and the filtered rectified power-related signal.” *Id.* at 27:5-9. Because these are structural terms, the claim language confirms that a skilled artisan would understand the claimed “adjustment circuit” to recite sufficiently definite structure. *Williamson, LLC*, 792 F.3d at 1351 (Fed. Cir. 2015); *see also Zeroclick*, 891 F.3d at 1007.

The specification further confirms the structural nature of the “adjustment circuit.” For example, the specification states that the “controller 204A shown in Figure 5 includes an additional adjustment circuit 208 that further conditions a signal output from the DC converter 402.” Ex. 2, ’399 Patent, 14:11-14. The specification goes on to explain that “[t]he adjustment circuit 208 in turn provides a variable drive signal to the LED-based light source 104, based on variations in the A.C. signal 500 (e.g., variations in the average voltage of the signal) in response to user operation of the dimmer.” *Id.* at 14:14-18. The specification gives specific examples of the adjustment circuit, including that the adjustment circuit in Figure 6 “is implemented . . . in part by the resistors R2 and R6 which form a voltage divider in the feedback loop of the integrated circuit U1. A control voltage 410 is derived at the junction of resistors R2 and R6, which control voltage varies in response to variations in the A.C. signal 500 due to dimmer operation.” *Id.* at 14:24-29. Again, these are structural descriptions that confirm a skilled artisan would understand the claimed “adjustment circuit” recites sufficiently definite structure. *Zeroclick*, 891 F.3d at 1007.

In view of the foregoing, the term “adjustment circuit” does not invoke § 112, ¶ 6.

1 **iii. If “adjustment circuit” is construed as means plus function, Signify’s proposed**
 2 **structure should be adopted.**

3 If “adjustment circuit” is governed by § 112, ¶ 6, which Signify disputes, the Court should
 4 adopt Signify’s proposed structure as supported by the specification. If interpreted as means plus
 5 function term, the parties generally agree on the function,⁵ but again dispute whether the
 6 corresponding structure includes all disclosed structures (as Signify contends) or just one specific
 7 circuit-level embodiment of the corresponding structure (as Defendants contend).

8 The parties agree that the corresponding structure can include “adjustment circuit 208,” but
 9 Defendants attempt to limit the structure to the exemplary embodiment in Figure 6. However,
 10 adjustment circuit 208 is first illustrated in Figure 5—of which Figure 6 is just an example
 11 embodiment. Ex. 2, ’399 Patent, 14:19-21 (“FIG. 6 is an exemplary circuit diagram that illustrates
 12 some of the details of the various components shown in FIG. 5, according to one embodiment of the
 13 invention.”). The specification explains, in conjunction with Figure 5, that the adjustment circuit
 14 “further conditions a signal output from the DC converter 402” and “provides a variable drive signal
 15 to the LED-based light source 104, based on variations in the A.C. signal 500 (*e.g.*, variations in the
 16 average voltage of the signal) in response to user operation of the dimmer.” *Id.* at 14:11-18.

17 The specification also discloses possible corresponding structures for the adjustment circuit
 18 in the processor 102, power circuitry 108, and drive circuitry 109. Dependent claims 20 and 28
 19 demonstrate that the adjustment circuit can include the processor 102 and drive circuitry 109,
 20 respectively. *See* claim 20 (“...the adjustment circuit includes at least one processor...”) and claim
 21 28 (“...the adjustment circuit includes drive circuitry...”). Indeed, the specification describes that
 22 the processor and drive circuitry can generate control signals to control the intensity of the light
 23 generated by the LED light sources. 15:44-48. The specification further explains that Figure 8, an
 24

25
 26 ⁵ Defendants propose only a single function for claims 17 and 19, *i.e.*, “variably control the at
 27 least one parameter of light based on the varying power-related signal.” Defendants ignore the
 28 additional functionality recited in claim 19 to “variably control the at least one LED based on the
 filtered rectified power-related signal.” Thus, Signify’s proposal regarding the function provided by
 the “adjustment circuit” should be adopted.

example of the power circuitry 108, could also include an adjustment circuit containing similar components to the example of Figure 6. *Id.* at 19:5-9.

The proper corresponding structures thus can include the adjustment circuit 208 of Figure 5 as described in the specification, and can include the exemplary embodiment of those components shown in Figure 6, as well as the processor 102, power circuitry 108, and drive circuitry 109 as illustrated in Figure 7, including the exemplary embodiments of those components as shown in Figure 8 (modified to include the adjustment circuit), and the exemplary embodiments of Figures 9, 10, and 11 (for the drive circuitry). There is no support for Defendants' exclusion of multiple disclosed structures from its proposal. *See Oatey Co.*, 514 F. 3d at 1276 ("We normally do not interpret claim terms in a way that excludes embodiments disclosed in the specification.").

Accordingly, if the Court finds that "adjustment circuit" is governed by § 112, ¶ 6, the Court should include the corresponding structures identified by Signify as possible structures for the adjustment circuit.

c. "power circuitry"

Signify's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning; however, to the extent that the Court deems a construction is required: "Components of a circuit that provides power"	Means plus function term.

i. The term "power circuitry" should be afforded its plain and ordinary meaning.

The term "power circuitry" is a common term that would be readily understood by a person of ordinary skill in the art at the time of invention. As described in further detail below, the meaning of "power circuitry" is readily ascertainable, as reflected in both the specification and dictionary definitions. There is no indication that the patentee played lexicographer and gave the term "power circuitry" a special meaning. Accordingly, the term should be afforded its plain and ordinary meaning. *See Phillips*, 415 F.3d at 1312-13. To the extent that a construction is necessary, Signify's

proposed construction as “components of a circuit that provides power,” aligns with the plain and ordinary meaning of the term, and should be adopted.

ii. The term “power circuitry” connotes structure and is not a means plus function term.

The term “power circuitry” refers to structure and should be construed according to its plain and ordinary meaning, *i.e.*, components of a circuit that provides power. In the context of the specification, power circuitry could include power circuit components in the power path from the AC input to the DC LED output, including typical circuits such as a rectifier and DC converter. The claims recite that the “power circuitry” is part of the “controller.” Defendants incorrectly argue that “power circuitry” should be interpreted as a means-plus-function term under 35 U.S.C. § 112, ¶ 6.

“Power circuitry” is not a means-plus-function term. It does not include the word “means” and is thus presumed not to invoke the means-plus-function provision of § 112, ¶ 6. *Zeroclick*, 891 F.3d at 1007. Defendants cannot rebut this presumption because the term “power circuitry” would have been understood as a term denoting structure.

Dictionaries demonstrate that “power circuitry” denotes structure, defining it as, for example, “the wires that carry current to electric motors and other devices that use electric power”—clearly structural objects. Ex. 11, MCGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS (5th ed. 1993) (defining “power circuit”). Thus, even before looking to the ’399 Patent, it is evident that a skilled artisan would understand “power circuitry” to recite sufficiently definite structure. *Zeroclick*, 891 F.3d at 1007.

In addition, the claims of the ’399 Patent recite sufficiently definite structure for the claimed “power circuitry.” Claim 18, for example, specifically recites “power circuitry,” as including a “rectifier,” a “low pass filter,” and a “DC converter.” Ex. 2, ’399 Patent, 26:38-67. Because these are structures, the claim language confirms that a skilled artisan would understand the claimed “power circuitry” to recite sufficiently definite structure. *Zeroclick*, 891 F.3d at 1007.

Finally, the specification of the ’399 Patent describes the power circuitry in structural terms. For example, Figure 8 “illustrates one exemplary circuit arrangement for the power circuitry 108.” Ex. 2, ’399 Patent, 18:50-53. The specification also explains that, for example, “a 5 Volt DC output

900 is provided for at least the processor 102, whereas a 16 Volt DC output 902 is provided for the drive circuitry 109, which ultimately provides power to the LED-based light source 104.” *Id.* at 18:54-58. Again, these are structural descriptions that confirm a skilled artisan would understand the claimed “power circuitry” to recite sufficiently definite structure. *Zeroclick*, 891 F.3d at 1007; In view of the foregoing, the term “power circuitry” does not invoke § 112, ¶ 6.

iii. If “power circuitry” is construed as means plus function, Signify’s proposed structure should be adopted.

If “power circuitry” is governed by § 112, ¶ 6, which Signify disputes, the Court should adopt Signify’s proposed structures. The parties generally agree on the function⁶ performed by the power circuitry, and also agree that corresponding structure for “power circuitry” can include (i) rectifier 404, low-pass filter 408, and DC converter 402. The parties disagree on whether the disclosed structure is limited to the specific circuit-level embodiments illustrated in Figure 6 (as Defendants propose), or whether it also encompasses the structures shown in Figures 3, 4, 5, 7, and 8 and the descriptions of the “power circuitry” components throughout the specification. Defendants’ proposal improperly excludes disclosed structures and must be rejected. *Acromed Corp.*, 253 F.3d 1371 at 1382-83; *see also Kinik Co.*, 362 F.3d at 1364.

It is not disputed that “power circuitry” can include a rectifier 404, low-pass filter 408, and DC converter 402. These “power circuitry” structures are illustrated in Figures 3, 5, and 7, respectively, and are therefore properly included as corresponding structure. Because the specification links these structural components to the functions recited for the power circuitry, any circuit-level embodiment of those components is encompassed within the claims. *See, e.g., UniRAM Tech., Inc. v. Monolithic Sys. Tech., Inc.*, No. C-04-1268 VRW, 2006 WL 825460, at *15 (N.D. Cal. Mar. 30, 2006) (holding that that the 112, ¶ 6 corresponding structure was a circuit’s “high-level block diagram,” which included three components); *Ampex Corp. v. Mitsubishi Elec. Corp.*, 966 F. Supp. 263, 270 (D. Del. 1997) (“[B]lock diagrams represent a number of different ways of

⁶ Signify proposes “provide power to the at least one LED based on the varying power-related signal,” while Defendants propose “provide at least the power to the at least one LED based on the varying power related signal.”

implementing a circuit.”). To be sure, example circuit level embodiments for these structures are illustrated in Figures. 4, 6, and 8, but there is no reason to limit the corresponding structure to only these specific circuit-level embodiments of the disclosed structures. To the contrary, the specification makes clear that the disclosed power circuitry is not limited to only the specific circuits shown in Figures. 4, 6, and 8. Ex. 2, ’399 Patent, 13:56-58 (explaining that all or part of the filter components may be located ahead of rectifier 404); *Id.* at 19:5-12] (explaining that power circuitry may include additional adjustment circuit even though not shown in FIG. 8); *Id.* at 19:13-16 (explaining that power circuitry of Figure 8 could be modified to derive a control signal from other parts of the circuit, such as at an output of the rectifier or low pass filter). Signify’s proposed structure should therefore be adopted because it properly includes all of the possible corresponding structures set forth in the specification.

For the foregoing reasons, if the Court finds “power circuitry” to be a means-plus-function term, the Court should adopt Signify’s proposed structure.

C. U.S. Patent 7,348,604 (the “’604 Patent”)

1. Technical Overview

The ’604 Patent is directed to a “light-emitting module,” that provides a number of advantages over prior designs. *See* Ex. 3, ’604 Patent, 4:7-13, 4:43-49. The ’604 Patent recognizes that LEDs “are increasingly competitive with light sources such as incandescent, fluorescent, and high-intensity discharge lamps,” due to their “ruggedness, long lifetime, high efficiency, low voltage requirements, and the possibility to control the color and intensity of the emitted light independently,” (*id.* at 1:17-23) but also identifies several problems with existing LED devices (*see id.* at 1:38-2:54). Among these, LED lighting devices often lacked ways of dissipating heat (*id.* at 1:49-51), required complicated housings (*id.* at 2:17-20), and were difficult to manufacture or failed to provide ease of maintenance (*id.* at 2:47-51). Accordingly, the ’604 Patent discloses a lighting design that effectively dissipates heat while allowing for simple assembly and replacement of its components. *Id.* at 6:46-53. This allows the light emitting module of the ’604 Patent to be used in a variety of different lighting applications. *Id.* at 1:29-37.

Figure 3 of the '604 Patent, annotated below, shows an exemplary light emitting module including a modularly formed housing element (40), heat sink (300), and substrate (50), with light emitting elements (315) mounted on the substrate (50). *See id.* at 5:36-41; *see also id.* at Figure 1 (of which Figure 3 is an exploded view).

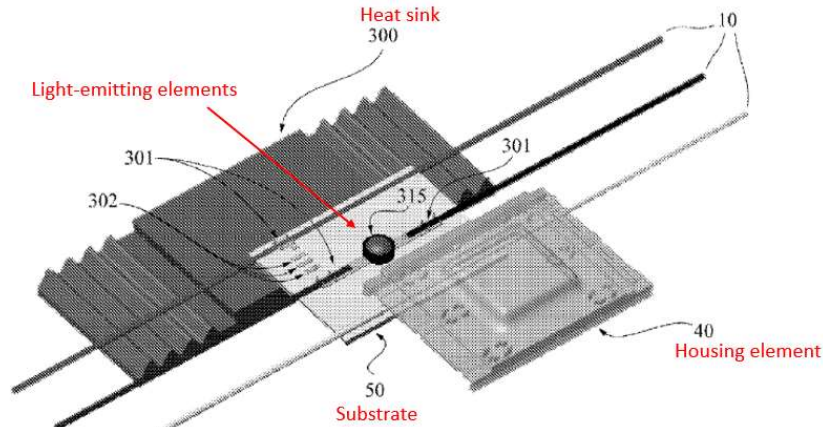


FIGURE 3

In this exemplary embodiment, heat sink 300 is formed from a “thermally conductive material,” and thus dissipates heat through “thermal convection, radiation, or conductance” to the environment. *Id.* at 6:56-65. Similarly, the substrate, to which the light emitting elements (315) are mounted (*id.* at 6:32-35), is “thermally connected” to the heat dissipation element (e.g., heat sink 300) (*see id.* at 8:39-65). The substrate thus “provide[s] thermal[] conductivity between the one or more light-emitting elements and the heat dissipation element” (*id.* at 8:39-43), and accordingly, “[h]eat generated by the light-emitting elements can thus be carried from the light-emitting elements through the substrate to the heat dissipation element” (*id.* at 4:29-31).

The light emitting elements are protected from environmental conditions by being “enclosed between the housing element and the heat dissipation element.” *Id.* at 5:25-28. To arrive at this enclosure, the housing element is detachably coupled to the heat dissipation element by way of a “fastening means.” *Id.* at 3:6-10. The detachable coupling of the housing element to the heat dissipation element provides for easy disassembly, thus permitting the interchangeability of the modular housing element, substrate, and heat dissipation element. *See id.* at 4:43-49.

The housing element further “includ[es] a transparent region” to enable “transmission of light emitted by the one or more light-emitting elements” through the enclosure formed by the housing element and the heat dissipation element. *Id.* at 3:10-12. In this way, the ’604 Patent discloses a lighting design that effectively dissipates heat and can be built from “simpler more generic modular elements.” *Id.* at 1:29-37.

2. Terms for Construction

a. “light-emitting module”

Signify’s Proposed Construction	Defendants’ Proposed Construction
Term appears in preamble, no construction required; however, to the extent that the Court deems a construction is required: “A self-contained assembly of electronic components and circuitry for emitting light”	Preamble is limiting. “A packaged light emitting device designed for use with other light emitting devices”

i. No construction is necessary because the preamble is not limiting.

The term “light-emitting module,” only appears in the preamble of the asserted claims of the ’604 Patent. Accordingly, the term is non-limiting and therefore does not require construction.

“As a general rule preamble language is not treated as limiting.” *Cochlear Bone Anchored Sols. AB v. Oticon Med. AB*, 958 F.3d 1348, 1354 (Fed. Cir. 2020) (quoting *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1347 (Fed. Cir. 2012)). The Federal Circuit has “long ruled that ‘a preamble is not limiting ‘where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.’” *Arctic Cat Inc. v. GEP Power Prod., Inc.*, 919 F.3d 1320, 1328 (Fed. Cir. 2019) (quoting *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002)).

The asserted claims of the ’604 Patent recite a structurally complete light-emitting module. For example, the body of claim 1 recites the following elements: (a) a thermally conductive substrate having one or more light-emitting elements connected thereto; (b) a heat dissipation element; and (c) a housing element including fastening means for detachably coupling the housing element to the heat dissipation element. Ex. 3, ’604 Patent, 10:35-52. The specification confirms that the disclosed

1 light-emitting module includes those exact same elements. *Id.* at 2:64-3:12. Figure 3 of the '604
2 Patent annotated above, illustrates an example of a structurally complete light emitting module
3 including a housing element (40), heat sink (300), and substrate (50), with light emitting elements
4 (315) mounted on the substrate (50). *See id.* at 5:36-41. As the body of claim 1 provides a structurally
5 complete light-emitting module according to the disclosure, the preamble is not limiting. *See Arctic*
6 *Cat*, 919 F.3d at 1328.

7 The preamble of claim 1 is similar to preambles the Federal Circuit found not to be limiting
8 in *Arctic Cat*. *Id.* There, the Federal Circuit held that the preambles “A personal recreational vehicle”
9 and “A power distribution module for a personal recreational vehicle” were both not limiting. *Id.*
10 The court found that the claims “‘describe structurally complete inventions’ and the preambles refer
11 to a personal recreational vehicle only as an intended use.” *Id.* at 1328. Here, the claims similarly
12 recite a structurally complete light-emitting module.

13 Defendants’ improperly attempt to re-write the preamble to require “[a] packaged light
14 emitting device designed for use with other light emitting devices.” Nothing in the specification of
15 the '604 Patent requires additional structural features to provide for use with additional light
16 emitting devices. Further, Defendants’ construction attempts to read an intended use into the claims
17 that is not required.

18 While the Federal Circuit has provided limited exceptions to the general rule that preambles
19 are not limiting, none of those exceptions apply here. More specifically, “a preamble may be limiting
20 if: ‘it recites essential structure or steps’; claims ‘depend[] on a particular disputed preamble phrase
21 for antecedent basis’; the preamble ‘is essential to understand limitations or terms in the claim body’;
22 the preamble ‘recit[es] additional structure or steps underscored as important by the specification’;
23 or there was ‘clear reliance on the preamble during prosecution to distinguish the claimed invention
24 from the prior art.’” (*Georgetown Rail Equip. Co. v. Holland L.P.*, 867 F.3d 1229, 1236 (*quoting*
25 *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801 (Fed. Cir. 2002) (alterations in
26 original)).

27 Taking these exceptions in turn, the preamble does not recite any additional structure beyond
28 what is recited in the claim body. The elements described in the specification—the housing element,

1 the substrate, the heat dissipation element—are recited in the body of the claim. There are no
2 limitations or terms in the claim body that rely on the preamble for antecedent basis. In other words,
3 the phrase “light emitting module” appears nowhere in the body of the claim, and thus the preamble
4 is not relied on by the body of the claim. The preamble is not essential to understanding any
5 limitations or terms in the claim body. Again, the elements described in the specification are recited
6 in the body of the claim. These elements together comprise what is already described in the
7 specification as the light-emitting module. Nothing in the specification would suggest that “light-
8 emitting module” offers some additional insight into the structures already recited. And the preamble
9 was not relied on for patentability. At no point in the prosecution history did the Examiner appear
10 to rely on the preamble to support reasons for allowance. By contrast, the Examiner looked to the
11 structures already recited—*e.g.*, the housing element, the fastening means—for the reasons for
12 allowance. Ex. 12, ’604 Patent, Notice of Allowance, October 23, 2007. Accordingly, there is no
13 reason to depart from the general rule that preambles do not limit claims.

14 **ii. If a construction of the preamble is deemed necessary, Signify’s construction**
15 **should be applied.**

16 Signify’s proposed construction of the term “light-emitting module” incorporates the well-
17 understood meaning of the term “module” as used in the field of electronics. “Module” means “A
18 self-contained assembly of electronic components and circuitry, such as a stage in a computer, that
19 is installed as a unit.” Ex. 13, THE AMERICAN HERITAGE DICTIONARY (4th ed. 2000). Accordingly,
20 to the extent that the term “light-emitting module” needs construction, it should be construed to
21 mean “a self-contained assembly of electronic components and circuitry for emitting light.”

22 Defendants’ proposed construction improperly incorporates the term “packaged.” The
23 specification of the ’604 Patent does not use the term packaged in relation to the disclosed light-
24 emitting module. Further, the body of the claims recite a structurally complete light-emitting module
25 that does not require describing the device as “packaged” as part of the construction of the preamble.
26 The light emitting elements are protected from environmental conditions by being “enclosed
27 between the housing element and the heat dissipation element.” Ex. 3, ’604 Patent, 5:25-28. Further,
28 Defendants’ construction incorporates an intended use for the light-emitting module that is not

required, *i.e.*, use with other light emitting devices. There is no such requirement in the body of the claim and the preamble should not be interpreted to change the scope of the claim. *See Gart*, 254 F.3d at 1339 (claim construction “is simply a way of elaborating the normally terse claim language in order to understand and explain, but not to change, the scope of the claims.”).

Thus, to the extent a construction is necessary, the Court should adopt Signify’s proposed construction of the term “light-emitting module” as “a self-contained assembly of electronic components and circuitry for emitting light.”

b. “fastening means”

Signify’s Proposed Construction	Defendants’ Proposed Construction
Governed by § 112 ¶ 6.	Means plus function term.
Function: detachably coupling the housing element to the heat dissipation element.	Function: releasably connecting the housing element to the heat dissipation element.
Structure: fastening means as described at 5:18-24, 6:18-24, 7:25-26, 7:42-51, 7:55-67 and/or identified by reference numeral 450 in FIG. 4, and equivalents thereof.	Structure: The tabs 450 shown in Fig. 4 and described in col. 7:42- 51, and their structural equivalents.

The parties agree that the term “fastening means” is a means plus function term governed by 35 U.S.C. § 112 ¶ 6. Construction of a means-plus-function term involves two steps, (i) determining the particular function of the claim limitation, and (ii) identifying the corresponding structure in the written description that performs that function. *Chi. Bd. Options Exchange* 677 F.3d at 1367 (Fed. Cir. 2012). The parties disagree regarding both the required function and the associated structure.

Signify proposes the express function recited in claim 1 of the ’604 Patent with respect to the fastening means, *i.e.*, detachably coupling the housing element to the heat dissipation element. There should be no dispute here because “detachably” and “coupling” are plain English words. *See Chef America, Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1372-73 (Fed. Cir. 2004) (ordinary, simple English words whose meaning is clear and unquestionable and there is no indication that their use in the patent changes their meaning, mean exactly what they say). As explained by the Federal Circuit, “[i]n some cases, the ordinary meaning of claim language as understood by a person of skill

1 in the art may be readily apparent even to lay judges, and claim construction in such cases involves
2 little more than the application of the widely accepted meaning of commonly understood words.”
3 *Phillips*, 415 F.3d at 1314. There is simply no basis to rewrite the straightforward function of the
4 recited fastening means.

5 Section 112, ¶ 6 provides that, when such a term is present in the claim, the “claim shall be
6 construed to cover the corresponding structure, material, or acts described in the specification and
7 equivalents thereof.” 35 U.S.C. § 112, ¶ 6 (pre-AIA). The ’604 Patent provides numerous different
8 examples of coupling parts of the light-emitting module together to allow for interchangeability of
9 components. *See, e.g.*, Ex. 3, ’604 Patent, 3:6-8 (“fastening means for detachably coupling the
10 housing element to the heat dissipation element”), 4:20-22 (disclosing a “housing element which
11 matingly connects with the heat dissipation element”), 4:43-49 (“The housing element further
12 includes a fastening system to secure the various components of the light-emitting module
13 together.”), 4:59-61 (“In one embodiment, the optical element can be readily interchanged or
14 replaced to meet desired lighting requirements”), 6:46-53 (“As illustrated in Figure 3, the light-
15 emitting module can be assembled in a relatively easy manner, and further can provide a means for
16 relatively easy replacement or repair of the module components.”), 7:25-26 (“The housing element
17 comprises fastening means to secure the various components of the light-emitting module together
18 ...”), 7:42-51 (“... fastening means 450 can assume a position which enables the housing to be slide
19 over the heat dissipation element 300. Upon removal of the force, the housing element can assume
20 its unstrained shape, thereby causing the fastening elements to clutch the heat dissipation element
21 and secure a releasable connection between the housing element and the heat dissipation element”),
22 8:23-24 (“The optical element can be configured to be permanently or releasably coupled to the
23 housing element”).

24 The specification of the ’604 Patent discloses that “fastening means” can be:

25 mechanical fasteners for example, screws, bolts rivets or the like,
26 magnetic mounting systems, adhesives for example, pressure
27 sensitive tape, glue or epoxy or the like, or other forms of fastening
28 means as would be readily understood by a worker skilled in the art.

1 Ex. 3, '604 Patent, 5:19-24. The specification goes on to state that “fastening means” can be part of
2 the “housing element” and used to “secure the various components of the light-emitting module
3 together.” *Id.* at 7:25-27. The '604 Patent provides an additional example of a fastening means 450
4 with respect to Figure 4 of the patent. *Id.* at 7:42-47. The term fastening means should be construed
5 to include all of the possible structures disclosed in the '604 Patent that are suitable for detachably
6 coupling the housing element to the heat dissipation element, as well as their equivalents. *See id.* at
7 5:18-24, 6:18-24, 7:25-26, 7:42-51, 7:55-67, FIG. 4.

8 Defendants improperly attempt to limit the associated structure to “fastening means” 450
9 (which Defendants refer to as “tabs”) shown in Figure 4 and described in col. 7:42-51, and their
10 structural equivalents. There is no basis for limiting the structure as proposed by Defendants.
11 Defendants’ proposal improperly excludes disclosed structures and must be rejected. *Acromed*
12 *Corp.*, 253 F.3d at 1382-83 (holding “[t]his court will not limit a patent to its preferred embodiments
13 in the face of evidence of broader coverage by the claims”); *see also Kinik Co.*, 362 F.3d at 1364.
14 As discussed above, the '604 Patent discloses a number of different possible structures for the term
15 “fastening means.” The term should not be limited to one example structure (fastening means 450
16 of Figure 4) to the exclusion of the others.

17 Defendants’ proposal to limit the term “fastening means” to the exemplary structure 450 is
18 also barred by principles of claim differentiation. Claim 11, which depends from claim 1, recites
19 that “the housing element is formed from flexible material for releasably connecting to the heat
20 dissipation element.” Ex. 3, '604 Patent, cl. 11. The specification provides that the flexibility of the
21 housing operates in conjunction with the exemplary fastening means 450 to provide the releasable
22 connection as set forth below:

23 In one embodiment, the housing may be made of a material which has
24 a degree of flexibility such that under a controlled applied mechanical
25 force, the housing assumes a strained shape and its fastening means
26 450 can assume a position which enables the housing to be slid over
27 the heat dissipation element 300. Upon removal of the force the
28 housing element can assume its unstrained shape, thereby causing the

fastening elements to clutch the heat dissipation element and secure a releasable connection between the housing element and the heat dissipation element.

Ex. 3, '604 Patent, 7:42-51. Given that claim 11 recites that the housing element is formed from a flexible material, *i.e.*, the condition that allows for the operation of the exemplary fastening means 450 to secure a releasable connection⁷ between the housing element and the heat dissipation element, claim 1 of the '604 Patent must necessarily provide broader coverage. Limiting the structure associated with the term “fastening means” to the exemplary fastening means 450, which require the housing element to be flexible, would improperly render claim 11 superfluous. *See Comark Communications v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (stating the presumption that each claim in a patent must have a different scope).

Additionally, Defendants' construction does not align with the Examiner's understanding of the term “fastening means.” Particularly, the Examiner noted that the fastening means of the prior art, an adhesive, was not part of the housing, but instead coupled the substrate to the heat dissipation element. Ex. 12, '604 Patent, Notice of Allowance (“Shih '650 discloses an adhesive 185 which serves as fastening means coupling the substrate 160 to the heat dissipation, but fails to disclose that the *fastening means (adhesive 185)* is part of the housing 140.”) (emphasis added). The Examiner thus understood fastening means in line with Signify's proposed construction and did not limit it to the example of Figure 4.

Accordingly, the term “fastening means” should be construed to include all of the possible structures disclosed in the '604 Patent, as well as their equivalents. *See* Ex. 3, '604 Patent, 5:18-24, 6:18-24, 7:25-26, 7:42-51, 7:55-67, FIG. 4.

⁷ Defendants' attempt to improperly limit the associated structure for the term “fastening means” to a single embodiment is illustrated by Defendants' proposed function. Defendants' proposal rewrites the stated function of the term “fastening means” from “detachably coupling,” as expressly recited in claim 1, to “releasably connecting.” That term is solely used with respect to the description of fastening means 450 and in claim 11, which is directed to a condition for using that particular example of fastening means, *i.e.*, a housing element formed from a flexible material.

c. “thermally connected/thermally coupled”

Signify’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning; however, to the extent that the Court deems a construction is required: “Transfer via thermal conduction, convection, or radiation.”	“connected via thermal conduction, convection, or radiation; not thermally insulated”

The parties agree that the terms “thermally connected” and “thermally coupled” should be given the same construction. The parties further agree that the terms both relate to “thermal conduction, convection, or radiation” as set forth in the specification of the ’604 Patent. In particular, the ’604 Patent teaches that the recited heat sink 300 is formed from a “thermally conductive material,” and thus dissipates heat through “thermal convection, radiation, or conductance” to the environment. Ex. 3, ’604 Patent, 6:56-65. Similarly, the substrate is “thermally connected” to the heat dissipation element (*e.g.*, heat sink 300) in that the substrate “provide[s] thermal conductivity between the one or more lighting emitting elements and the heat dissipation element” *See id.* at 8:39-43.

Signify maintains that these terms should be afforded their plain and ordinary meaning. The terms “thermally coupled” and “thermally connected” are common terms that would have been readily understood based on common usage, which is consistent with the usage of those terms in the specification. There is no indication that the patentee played lexicographer and gave these terms a special meaning. Accordingly, both terms should be afforded their plain and ordinary meaning. *See Phillips*, 415 F.3d at 1312-13.

To the extent a construction is deemed necessary, Signify maintains that the elements in the claims that are “thermally connected/coupled” provide “transfer via thermal conduction, convection, or radiation” to one another. This is consistent with the common usage of coupling between elements in the engineering field. *See* Ex. 14 CONCISE DICTIONARY OF ENGINEERING (1st Ed. 2014) (defining coupling as “Energy transfer between circuit, equipments, or systems”). This construction “stays true to the claim language and most naturally aligns with the patent’s description of the invention.” *Renishaw*, 158 F.3d at 1250 (Fed. Cir. 1998).

1 In contrast, Defendants’ proposal commits two separate errors. First, Defendants offer a
2 construction of the terms “thermally connected” and “thermally coupled” that reuses the term
3 “connected.” This provides no further clarity as to the scope of the claim terms. Second, Defendants
4 add a second clause, *i.e.* “not thermally insulated,” to their definition that is unsupported by the
5 specification, adds confusion to the construction, and imports a disfavored negative limitation.

6 The term “not thermally insulated” does not appear in the specification of the ’604 Patent
7 and is wholly unsupported. Thus, Defendants’ proposal should be rejected because it does not align
8 with the teachings of the ’604 Patent. *See Renishaw*, 158 F.3d at 1250 (“[t]he construction that stays
9 true to the claim language and most naturally aligns with the patent’s description of the invention
10 will be, in the end, the correct construction.”).

11 Defendants’ construction also adds ambiguity to the claim as the separation of the clauses
12 by a semicolon renders it unclear whether both clauses are required, or whether Defendant is
13 proposing alternate constructions. Further, Defendants’ proposed construction creates uncertainty as
14 to whether “not thermally insulated” would require the elements to be thermally insulated from one
15 another, or would require that there be no thermal insulation from anything whatsoever. A
16 construction that renders the scope unclear should not be countenanced.

17 Finally, Defendants improperly seek to add a negative claim limitation. A negative claim
18 limitation cannot be added when there is no support in specification, no express disclaimer, or no
19 independent lexicography in written description. *See Omega Engineering, Inc. v. Raytek Corp.*, 334
20 F.3d 1314, 1322-23 (Fed. Cir. 2003); *see also Corcept Therapeutics, Inc. v. Teva Pharms. USA, Inc.*,
21 No. 18-3632, 2020 WL 3425302, *3-*4 (D.N.J. June 23, 2020) (rejecting contention that a limitation
22 of “achieve mifepristone blood levels greater than 1300 ng/mL” required that patient’s blood level
23 remain above the specified level, finding that the specification did not show a clear disavowal that
24 supported a proposed narrow construction.) There is no support in the ’604 Patent or any disclaimer
25 that supports Defendants’ strained construction.

26 Accordingly, Defendants’ proposal should be rejected and the terms “thermally connected”
27 and “thermally coupled” should be afforded their plain and ordinary meaning. To the extent a
28

construction is deemed necessary, the terms should be construed as “transfer via thermal conduction, convection, or radiation.”

d. “housing element including a transparent region”

Signify’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning; however, to the extent that the Court deems a construction is required: “A housing part including a transparent region”	“a single structure having a transparent region”

The sole dispute regarding this phrase is over the construction of the term “housing element.” Signify does not believe that the term “housing element” needs construction. It is a clear and straightforward term and simply means “a housing part.” Defendants’ proposal improperly tries to rewrite the term housing element as a single structure.

There should be no dispute here because “element” is a plain English word. *See Chef America*, 358 F.3d at 1372-73 (ordinary, simple English words whose meaning is clear and unquestionable and there is no indication that their use in the patent changes their meaning, mean exactly what they say). As explained by the Federal Circuit, “In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” *Phillips*, 415 F.3d at 1314 “In such circumstances, general purpose dictionaries may be helpful.” *Id.* “Element” means “a part.” Ex. 15, CAMBRIDGE INTERNATIONAL DICTIONARY OF ENGLISH (1995). Accordingly, to the extent that the term “housing element” needs construction, it should be construed to mean a “housing part” in accordance with its plain and ordinary meaning.

Defendants’ proposed construction attempts to limit the housing element to a single structure. Defendants fail to point to any intrinsic or extrinsic support that limits the housing element to a single structure. At most, Defendants point to one example in the ’604 Patent in which the housing element and one or more optical elements can be integrally formed as a single unit. Ex. 3, ’604 Patent, 8:25-27. Defendants’ proposal lacks support in the specification and commits “one of

the cardinal sins of patent law—reading a limitation from the written description into the claims.” *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1340 (Fed. Cir. 2001). The Federal Circuit has “repeatedly warned against confining the claims to those embodiments” described in the specification. *Phillips*, 415 F.3d at 1323. Thus, Defendants’ proposal is improper.

Signify maintains that no construction is necessary for this plain English term and it should be afforded its plain and ordinary meaning. However, to the extent a construction is necessary, Signify’s proposed construction of the term “housing element including a transparent region” as a “housing part including a transparent region” should be adopted.

D. U.S. Patent 8,063,577 (the “’577 Patent”)

1. Technical Overview

The ’577 Patent is directed to a driver circuit for operating light emitting diodes (LED). *See* Ex. 5, ’577 Patent, 1:4-5. To operate, LEDs require precise voltage or current control, as even small variations in voltage will result in large variations in current through the LEDs—and, consequently, large variations in the brightness of the LEDs. *See id.* at 1:11-13. One method for controlling the current is to use a circuit known as a “switched mode power supply.” *Id.* at 1:18-19. Such circuits, however, if not optimized for powering LEDs, exhibit various inefficiencies that can result in the need for large filtering circuits or large inductors. *Id.* at 1:36-41. The ’577 Patent thus discloses a driver circuit that is optimized to efficiently power LEDs. *See id.* at 1:42-59.

2. Terms for Construction

a. “connected/coupled in series”

Signify’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning	“electrical current pass through [an inductor and the set of output terminals OR a primary winding of the transformer and the resonant capacitor] in turn without branching”

The terms “connected in series” or “coupled in series” require no construction beyond their plain and ordinary meaning, as the terms are well understood and widely used in the field. *See* Ex. 16, Declaration of Dr. Regan Zane dated August 4, 2023 (the “Zane Decl.”), ¶¶ 34-35. As held by

The diagram shows a power factor correction (PFC) converter. The primary winding (8a) is connected to an AC source (24) through a switch (6) and an inductor (Ls). The secondary winding (8b) is connected to a full-bridge rectifier (12, 14) and a load (18) through a diode (2) and a capacitor (20a). The circuit is labeled with various components and terminals.

⁸ Plaintiffs and Defendants agree that the terms “connected in series” and “coupled in series” should be given the same construction.

In this example, the resonant capacitor (6) is arranged with the primary winding (8a) to permit current (represented by the red arrows) to flow sequentially—first through the resonant capacitor and then through the primary winding—through these components. *See* Ex. 16, Zane Decl., ¶ 37. More particularly, the current flows from voltage source 24 through input terminal (4a), through resonant capacitor (6), through primary winding (8a), and back to voltage source (24) via input terminal (4b). *Id.*

In much the same way, the independent claim requires an “inductor connected in series with the output terminals.” Ex. 5, ’577 Patent, 3:20-21. An example of this is shown below in another annotated version of Figure 1.

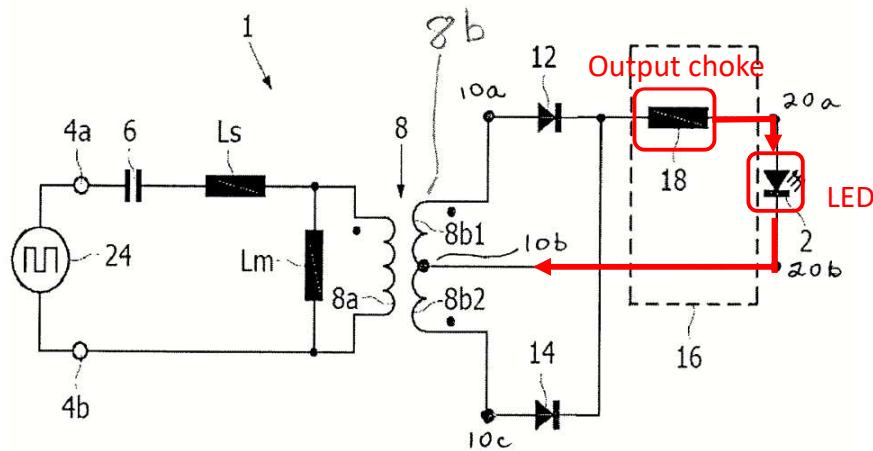


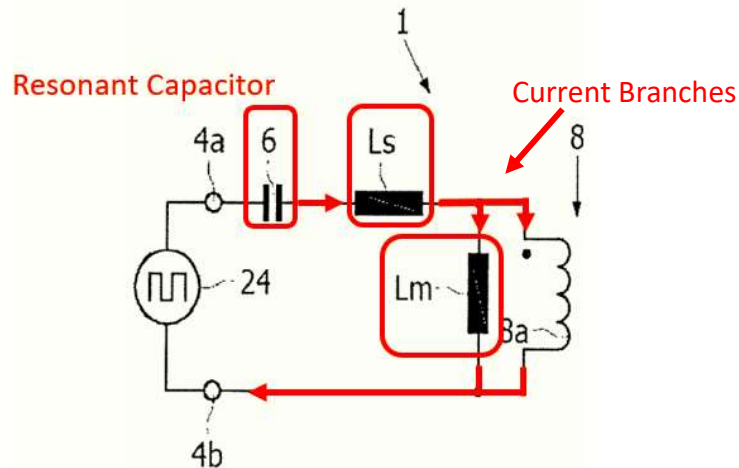
FIG. 1

As shown, the output choke (18) (which is a “suitable inductor”) is arranged with output terminals 20a and 20b to permit the current to flow sequentially through each (i.e., in the direction of the red arrows). *See* Ex. 16, Zane Decl., ¶¶ 38-40. This series connection assumes that at least one LED (2) is connected to the output terminals to permit current to flow between them. *Id.*; *see also*, Ex. 5, ’577 Patent, 3:41-46.

Defendants’ construction, by contrast, adds a negative limitation, requiring that the current flows through the components in turn “without branching.” This addition of a negative limitation is not consistent with at least two examples from the specification, confuses more than clarifies, and thus should be rejected. *See, e.g., Sound View Innovations, LLC v. Hulu, LLC*, 33 F.4th 1326, 1336

(Fed. Cir. 2022) (holding that a construction with a negative limitation was “inadequate” to permit a comparison of the accused products or methods.); Ex. 16, Zane Decl., ¶ 42.

For example, the specification further describes a “resonant characteristic of the series connection of the resonant capacitor 6 and the inductances L_s and L_m of the primary winding 8a.” Ex. 5, ’577 Patent, 4:11-12. This arrangement is shown below in another annotated version of Figure 1 (the right-hand side of the circuit has been omitted to focus on the salient aspects of this series connection); Ex. 16, Zane Decl., ¶ 43.



Inductance L_s is a model of a “stray inductance” of the primary winding of transformer 8, L_m is a model of a “main” inductance of the primary winding of transformer 8, and the element 8a is a model of the ideal behavior (without the inductances or other parasitic elements) of the primary winding of transformer 8. Ex. 5, ’577 Patent, 3:22-23. In this model, the model of the primary winding (8a) branches from the modeled main inductance L_m , thus providing two paths for the current flowing from resonant capacitor (6). While these modeled inductances are not “actual elements,” (*id.* at 3:24-27), the specification still uses the phrase “series connection” to describe the flow of current through the modeled elements as depicted. Ex. 5, ’577 Patent, 4:8-13. Thus, the description of the modeled elements can be relied upon for understanding how the patent uses “in series.” Ex. 16, Zane Decl., ¶ 44.

The current flowing out of the resonant capacitor (6) and inductance L_s branches, so that part of the current passes through inductance L_m , and part of the current passes through the model of primary winding (8a). *See* Ex. 16, Zane Decl., ¶ 45. As a result, the phrase “without branching”

as it appears in Defendants' construction is inconsistent with the specification's description of the resonant capacitor (6) being connected in series with both inductance L_m and primary winding (8a). *Id.* In contrast, a person of ordinary skill would readily understand the description in the patent in its plain and ordinary meaning, i.e., that the resonant capacitor is connected in series with L_s and L_m to create a resonant circuit despite the branching path through the model of winding 8a. Ex. 16, Zane Decl., ¶¶ 44, 48

Second, dependent claim 7 of the '577 Patent, which depends from claims 1 and 6, requires a "control circuit" having a "control input terminal for receiving a LED control signal." An example of this is shown in Figure 2 of the '577 Patent, in which control circuit 34 receives the "control signal 38 as an input." Ex. 5, '577 Patent, 3:55-61; *see also*, Ex. 16, Zane Decl., ¶ 46. The specification explains that the "LED control signal 38 is a LED voltage." *Id.* In other words, the voltage across the LED is measured and provided as an input to the control circuit (34). Ex. 16, Zane Decl., ¶ 46. As shown below in an annotated version of Figure 2 of the '577 Patent, the input to the control circuit (34) can be connected after the output choke (18), in which case current branches to provide a measurement of the LED voltage to the control circuit (34):

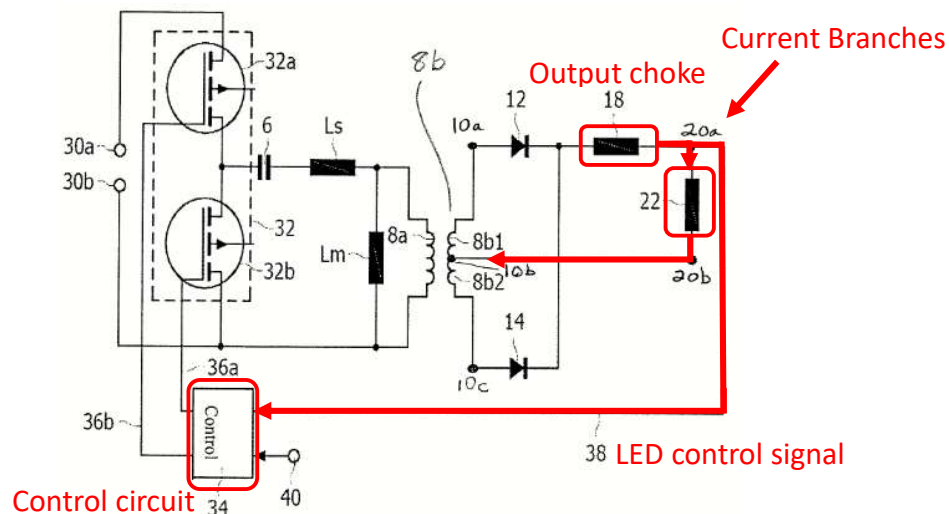


FIG. 2

Id. Despite this additional branch, the '577 Patent describes that the "current generated in the secondary winding of the transformer flows through a LED or a series of LEDs connected in series

with an inductor.” Ex. 5, ’577 Patent, 1:23-25. Moreover, the addition of the “control circuit” in claim 7 cannot change the fact that the “inductor” is “connected in series with the set of output terminals” as recited in claim 1. Defendant’s “without branching,” construction would preclude the use of this control circuit due to the branching of current to the control circuit and must be rejected. Ex. 16, Zane Decl., ¶¶ 47-48.

Additionally, all transformers naturally have a leakage inductance and parasitic capacitance because of the manner in which they are constructed. *Id.* at ¶ 49. The ’577 Patent itself mentions there will be a leakage inductance (Ex. 5, ’577 Patent, 1:49-59) that will provide an additional path for current. Ex. 16, Zane Decl., ¶ 49. Moreover, the parasitic capacitance that naturally exists between the primary winding (8a) and the secondary winding (8b) of the transformer will create an additional path for current entering the primary winding (8a) to branch and flow to the secondary winding (8a), meaning that the current entering the primary winding (8a) will not equal the current exiting the primary winding (8a) as some will flow to the secondary winding (8b). *Id.* Defendants’ construction is inconsistent with the natural operation of all transformers, including transformer (8), because it requires the current to pass through primary winding “without branching.” *Id.* As Defendants’ “without branching” construction is inconsistent with properties inherent to transformers, it must be rejected. *Id.*

The terms “connected in series” and “coupled in series” should be given their plain and ordinary meaning, as a person of ordinary skill in the art would understand the scope of these terms. Defendants’ suggested construction, including “without branching,” is inconsistent with the way that the specification uses the terms and with the inherent nature of transformers in operation and should be rejected.

E. U.S. Patent 9,709,253 (the “253 Patent”)

1. Technical Overview

The ’253 Patent is directed to “a recessed light fixture with an LED light source.” Ex. 6, ’253 Patent, 2:16-18. “A recessed light fixture is a light fixture that is installed in a hollow opening in a ceiling or other surface.” *Id.* at 1:50-51. Previously, recessed light fixtures often used either incandescent lamps or compact fluorescent lamps as light sources. *Id.* at 1:56-62. Both of these light

sources screwed into a lamp socket in the recessed light fixture. *Id.* at 1:59-62. Unlike these previous recessed light fixtures, however, the '253 Patent uses light emitting diodes ("LEDs") for the light sources. *Id.* at 2:17-18. LEDs have the advantage of higher energy efficiency and better longevity than both incandescent lamps and compact florescent lamps. *Id.* at 2:4-7. Additionally, unlike compact florescent lamps, LEDs are mercury-free, meaning that they are easier to dispose of and their use raises fewer environmental concerns. *Id.* at 2:1-5.

Despite the advantages of LEDs over these other light sources, LEDs were not typically incorporated into recessed fixtures because (1) "LEDs do not fit in existing incandescent lamp sockets," and (2) "require complex electrical and thermal management systems." *Id.* at 2:8-13. The '253 Patent solves the first of these issues by providing an LED module and driver that can connect to existing lamp sockets via an adapter. *Id.* at 3:29-31. The second of these issues alludes to the fact that LEDs generate "a substantial amount of heat that raises the operating temperature of LEDs if allowed to accumulate." *Id.* at 7:10-15. Allowing this heat to accumulate could result in decreased efficiency or even failure of the LED module. *Id.* Accordingly, the '253 Patent requires a heat sink to manage the heat produces by the LEDs by conducting heat away from the LEDs. *Id.* at 7:16-20.

2. Terms for Construction

a. "a heat sink comprising an upper surface and a lower surface"

Signify's Proposed Construction	Defendants' Proposed Construction
Plain and ordinary meaning.	"a heat sink having a surface at a top end and another surface at a bottom end"

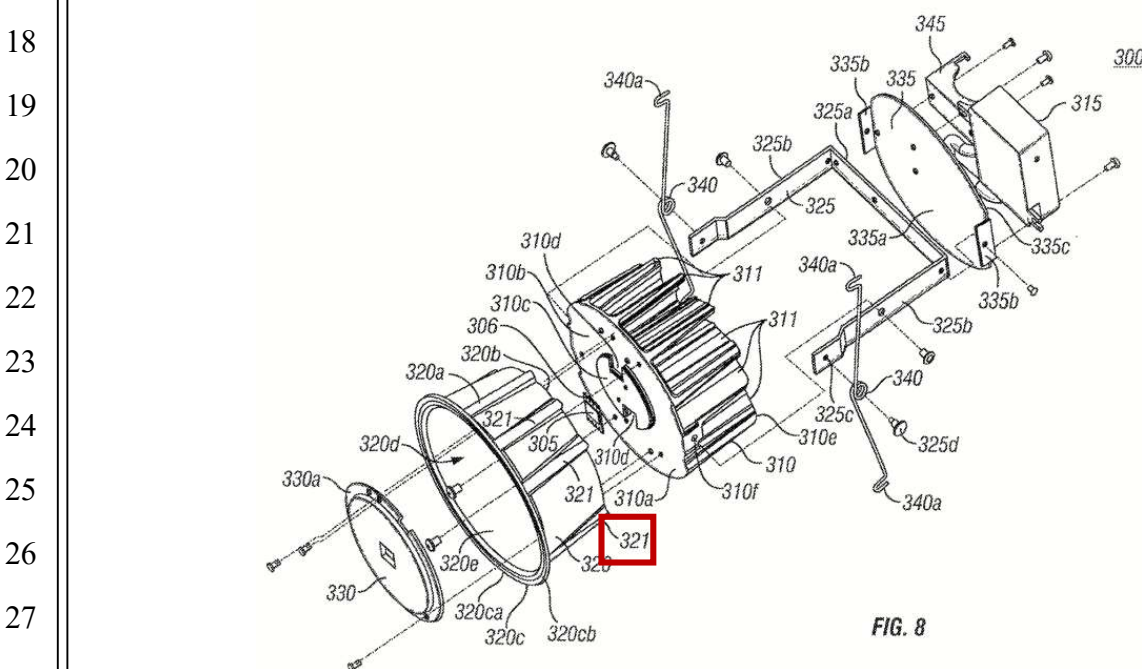
The terms "heat sink," "upper surface," and "lower surface" as used in this phrase in the '253 Patent have plain and ordinary meanings, as confirmed by the '253 Patent specification. Defendants agree that the plain and ordinary meaning should be applied to the term "heat sink" as they incorporate that term directly into the proposed construction. However, Defendants improperly construe the upper surface and lower surface to be surfaces located at the top end and bottom end of the heat sink. These are plain English terms that require no construction. Those surfaces define

3 The claims are directed broadly to a heat sink having an upper surface and a lower surface.
4 Nothing in the claims themselves suggests that those surfaces must be located at a top and bottom
5 end of the heat sink. The specification of the '253 Patent provides that:

6 The LEDs in the LED package 305 are attached to the substrate 306
7 by one or more solder joints, plugs, epoxy or bonding lines, and/or
8 other means for mounting an electrical/optical device on a surface.
9 Similarly, the **substrate 306 is mounted to a bottom surface 310a**
10 **of the heat sink 310** by one or more solder joints, plugs, epoxy or
11 bonding lines, and/or other means for mounting an electrical/optical
12 device on a surface. For example, the substrate 306 can be mounted
13 to the heat sink 310 by a two-part arctic silver epoxy.

14 Ex. 6, '253 Patent, 6:59-67 (emphasis added).

15 An example bottom or “lower surface” of heat sink 310, is illustrated in Figure 8 of the '253
16 Patent as set forth below.



1 The “bottom surface 310a of the heat sink 310 includes a substantially round member 310b with a
2 protruding center member 310c on which the LED package 305 is mounted.” *Id.* at 7:24-27. Further,
3 the “[f]ins 311 extend substantially perpendicular from the bottom **surface** 310a, towards a top **end**
4 310e of the heat sink 310.” *Id.* at 7:36-37. (Emphasis added). Thus, the specification of the ’253
5 Patent expressly distinguishes between the terms “surface” and “end.” Defendants’ proposal would
6 render that distinction irrelevant (*i.e.*, the terms “upper surface” and “top end” for example would
7 have no distinct meaning).

8 There is simply no basis to stray from the plain and ordinary meaning of the lower surface
9 described in the specification to require the additional limitations that the surfaces must be located
10 at the bottom and top ends of the heat sink as Defendants propose. *See Renishaw*, 158 F.3d at 1250
11 (“[t]he construction that stays true to the claim language and most naturally aligns with the patent’s
12 description of the invention will be, in the end, the correct construction.”). Further, these terms are
13 written in plain English. Neither the Court nor the jury would have any difficulty understanding
14 them. Additional interpretation is not required.

15 Accordingly, Defendants’ proposal should be rejected and the terms “upper surface” and
16 “lower surface” should be afforded their plain and ordinary meaning.

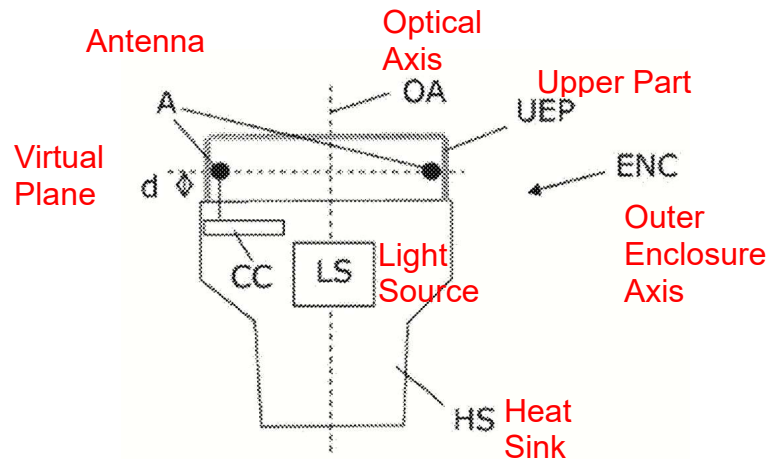
17 **F. U.S. Patent RE 49,320 (the “’320 Patent”)**

18 **1. Technical Overview**

19 The ’320 Patent is directed to a lighting device with a built-in radio frequency (RF) antenna,
20 to permit wireless remote control of the light sources (often referred to as “intelligent lighting” or
21 “smart lighting”). Ex. 7, ’320 Patent, 1:66-2:4; 1:25-39. Devices with wireless RF communication
22 capabilities face a problem: certain components of the lighting device, particularly metallic
23 components like heat sinks, will disturb RF signals radiated from the antenna, negatively influencing
24 “the RF communication with remote controls or other lamps.” *Id.* at 1:40-46.

25 Accordingly, the ’320 Patent discloses a lighting device in which metallic components that
26 are likely to interfere with the RF antenna are arranged below the antenna, so as to not interfere with
27 the RF signals radiated from it. *Id.* at 2:52-56. More particularly, such metallic components are
28 arranged below a virtual plane that goes through the RF antenna and is perpendicular to an optical

axis of the lighting device. *Id.* at 5:49-54. Figure 1 of the patent, annotated below, illustrates an exemplary lighting device with the light source (LS) generating light along optical axis (OA). *Id.* at 4:60-63.



The metal housing (HS) is located below the virtual plane (VP) to ensure it does not interfere with signals arriving at the RF antenna (A). *Id.*

The antenna (A) is positioned within an outer enclosure (ENC) that is split into at least an upper part and a lower part. *Id.* at 4:53-66. The upper part (UEP) is made of a non-metallic material so as to not interfere with the RF antenna (A), and the lower part is a metal housing (HS). *Id.* at 5:23-29. In this way, the lighting device allows for RF control while maintaining a compact size. *Id.* at 1:66-2:4.

2. Terms for Construction

a. “configured for generating light along an optical axis”

Signify’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning	“the beams from one or more light-emitting diodes are set up to be parallel to a single optical axis”

The recited phrase “configured for generating light along an optical axis” includes plain English phrases, which require no construction. These “terms in the claim mean what they say.” *Johnson Worldwide Assocs., Inc. v. Zebco Corp.*, 175 F.3d 985, 989 (Fed. Cir. 1999); *see also Chef America, Inc.*, 358 F.3d at 1372-73 (ordinary, simple English words whose meaning is clear and

1 unquestionable, absent any indication that their use in a particular context changes their meaning,
2 are construed to mean exactly what they say).

3 The specification of the '320 Patent uses this phrase in accordance with the plain and
4 ordinary meaning. The '320 Patent teaches a "lighting device, such as a replacement lighting device,
5 comprising a light source arranged to generate light along an optical axis." Ex. 7, '320 Patent, 2:5-
6 8. The '320 Patent does not place any additional restrictions on the requirement for the light source:
7 the only requirement is that light is generated along the optical axis.

8 The '320 Patent primarily discusses the optical axis in relation to the positioning of the
9 antenna and metallic components of the lighting device. Specifically, the antenna of the lighting
10 device is described as being arranged with respect to the metallic components to avoid impacting
11 the antenna radiation pattern of the antenna. The metallic components of the lighting device are
12 arranged below a virtual plane that goes through the RF antenna and that is perpendicular to an
13 optical axis of the lighting device. *Id* at 2:52-57; 4:19-29; 5:49-54. Figure 1 of the patent, annotated
14 above, shows an exemplary lighting device with the light source (LS) generating light along optical
15 axis (OA) in relation to the virtual plane. *Id* at 4:60-63.

16 The specification and claims of the '320 Patent use the optical (or principal axis) of the light
17 source, along which the light source is configured to generate light, to describe the relationship to
18 the virtual plane. *See e.g., id.* at claim 1, 8:14-18 ("the lighting device comprises one or more
19 metallic components . . . arranged below a virtual plane drawn orthogonal to the optical axis and
20 going through the first antenna."). That term should be interpreted to impart nothing more than the
21 plain and ordinary meaning.

22 Defendants' proposed construction improperly attempts to impart additional, unclaimed
23 limitations, to the recited phrase. Defendants argue that the phrase should require the beams from
24 one or more light-emitting diodes to be set up to be parallel. Defendants' proposed language finds
25 no support in the specification and would only serve to introduce confusion regarding what it means
26 for the light-emitting diodes to be "set up" to be parallel. Such a construction cannot be correct.

27 Defendants' citations to intrinsic support point repeatedly to additional elements cited in the
28 specification, such as the collimator shown in Figures 2-4. The collimator is cited, ostensibly, for

1 “setting up” the beams of the LED to be parallel.⁹ See Ex. 24, FIBER OPTICS STANDARD DICTIONARY,
 2 *collimator* (“An optical device that renders diverging or converging light rays parallel.”) Figure 1
 3 of the ’320 Patent, which illustrates the optical axis, does not depict the collimator. Thus, the
 4 collimator is simply not required for the light-emitting diodes to be configured to generate light
 5 along an optical axis as recited in claim. This alone renders it clear that Defendants are improperly
 6 trying to limit the claims to specific embodiments. See *SciMed Life Sys., Inc.*, 242 F.3d at 1340 (“one
 7 of the cardinal sins of patent law—reading a limitation from the written description into the
 8 claims.”).

9 Additionally, Defendants’ proposal to require a collimator is inconsistent with the principle
 10 of claim differentiation. According to Federal Circuit law, “There is presumed to be a difference in
 11 meaning and scope when different words or phrases are used in separate claims. To the extent that
 12 the absence of such difference in meaning and scope would make a claim superfluous, the doctrine
 13 of claim differentiation states the presumption that the difference between claims is significant.”
 14 *Tandon Corp. v. US Int’l Trade Comm’n*, 831 F.2d 1017, 1023 (Fed. Cir. 1987). Indeed, when
 15 construing claim language, different words or phrases used in separate claims are presumed to
 16 indicate that the claims have different meanings and scope. *Karlin Tech., Inc. v. Surgical Dynamics,*
 17 *Inc.*, 177 F.3d 968, 971-72 (Fed. Cir. 1999) (stating that the doctrine of claim differentiation stems
 18 from “the common sense notation that different words or phrases used in separate claims are
 19 presumed to indicate that the claims have different meanings and scope.”). See also, *Comark*
 20 *Communications v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (stating the presumption that
 21 each claim in a patent must have a different scope). For example, claim 16 of the ’320 Patent recites
 22 that the lighting device further comprises a collimator. ’320 Patent, 9:13-14. To interpret the recited
 23 phrase as Defendants proposes would render claim 16 superfluous. This cannot be the correct
 24 construction. See *Tandon Corp.*, 831 F.2d at 1023 (“To the extent that the absence of such difference
 25 in meaning and scope would make a claim superfluous, the doctrine of claim differentiation states

26 _____
 27 ⁹ Defendants also cite the mixing tube. The mixing tube, however, does not render the light
 28 parallel, but rather guides the light up to the collimator and provides color mixing. See Ex. 7, ’320
 Patent, 5:35-40.

the presumption that the difference between claims is significant.”); *see also SunRace Roots Enter. Co., Ltd. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003) (claim differentiation “is especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim.”).

Accordingly, Defendants’ tortured construction, which improperly attempts to add additional unrecited elements to the claims, must be rejected. The phrase “configured for generating light along an optical axis” should be accorded its plain and ordinary meaning.

b. “the heat sink forming at least a portion of an outer enclosure”

Signify’s Proposed Construction	Defendants’ Proposed Construction
Plain and ordinary meaning	“at least a segment of an outer enclosure is formed by the heat sink such that the heat sink is exposed to outside”

Signify’s proposed construction seeks to apply the plain and ordinary meaning to the recited phrase, which includes plain English phrases. The parties dispute centers on two issues: (1) the proper construction of the term “portion,” and (2) whether the heat sink must be exposed to the outside.

First, the term “portion” is consistently defined as a part: Ex. 15, CAMBRIDGE INTERNATIONAL DICTIONARY OF ENGLISH (1995) (“A part or share of something larger.”); Ex. 18, RANDOM HOUSE WEBSTER’S UNABRIDGED DICTIONARY (2nd ed. 1997) (“a part of any whole, either separated from or integrated with it”); Ex. 19, WEBSTER’S THIRD NEW INTERNATIONAL DICTIONARY (1993) (“a part of a whole”); Ex. 20, OXFORD AMERICAN DICTIONARY OF CURRENT ENGLISH (1999) (“a part or share”). As explained by the Federal Circuit, “[i]n some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” *Phillips*, 415 F.3d at 1314. The construction of the term “portion” is such a case. Defendants’ proposal to rewrite the term “portion” to be a “segment” is entirely unsupported. The term “segment” does not appear anywhere in the

1 specification of the '320 Patent. Nor do Defendants provide any intrinsic support for such a
2 construction. Rewriting the term “portion” to require a “segment” would be inconsistent with the
3 plain and ordinary meaning and solely serve to introduce ambiguity and confusion. Thus,
4 Defendants’ proposal should be rejected and the term “portion” should be construed according to
5 its plain and ordinary meaning.

6 Second, Defendants’ attempt to limit the heat sink to being exposed to outside improperly
7 attempts to add limitations to the claims. The claims of the '320 Patent require the heat sink to form
8 a portion of an outer enclosure, nothing more. There is no additional requirement that the portion be
9 exposed to the outside as Defendants propose. Defendants’ construction improperly attempts to
10 rewrite the claim. The Federal Circuit has “repeatedly warned against confining the claims to those
11 embodiments” described in the specification. *Phillips*, 415 F.3d at 1323. Thus, Defendants’
12 construction distorts the claim language and is improper.

13 Accordingly, the term “the heat sink forms at least a part of an outer enclosure” should be
14 construed according to the plain and ordinary meaning.

15 **IV. CONCLUSION**

16 For all the reasons set forth above, it is respectfully requested that the Court adopt Signify’s
17 proposed claim constructions for the disputed claim terms and phrases.

1 Dated: August 7, 2023

Respectfully submitted,

2 /s/ F. Christopher Austin

3 F. Christopher Austin (SBN 6559)

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